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IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

IN RE APPLICATION OF:	*STEVEN J. MOORE (Tel.: 203-426-4219)*	**ART UNIT:**	*2876*
APPLICATION SERIAL NO.:	*09/344,010*	**EXAMINER:**	*Kim, Ahshik (Tel.: 703-305-5203)*
FILING DATE:	*25 JUNE 1999 (earliest priority date – June 2, 1996)*	**DOCKET NO.:**	*122995-43-34.2*
TITLE:	*Method and Apparatus for Purchased Product Security*		

BRIEF

IN APPEAL OF FINAL REJECTION OF CLAIMS PENDING IN U.S. PATENT APPLICATION NO. 09/344,010

Date of Filing of Notice of Appeal: *November 13, 2003*

Date of Filing of Brief in Appeal: *(See Certif. of Mailing)*

FILED IN TRIPLICATE

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TABLE OF AUTHORITIES CITED

Real Party In Interest

The subject application continues to be owned by Steven J. Moore, the sole inventor, of 58 Butterfield Road, Newtown, Connecticut 06470.

Related Appeals and Interferences

Applicant remains unaware of any appeal and/or interference which may directly affect or have a bearing on the board's decision in the pending appeal.

Status of Claims

On November 13, 2003 (USPTO of Notice of Appeal), appellant appealed the final rejection of all pending claims (8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 26, 27, 28, 29, 30, 31) in the above case rendered on May 13, 2003 (mailing date). All such rejected claims are on appeal.

Status of Amendments

The case before this Board comes over seven years after the applications earliest asserted priority date, June 2, 1996, and after assignment to three different Examiners -- Examiners Tremblay, Taylor and Kim. As set forth below, the file history in such case is replete with examples of the left hand clearly not appreciating what the right hand has done -- with claims originally allowed by Examiner Tremblay subsequently being rejected by Examiner Taylor, Examiner Taylor subsequently reversing his rejections of such claims, and Examiner Kim picking up the file only to repeat verbatim Examiner Taylor's by then repudiated rejections.

An amendment-after-final was submitted on September 13, 2003 with a one month extension fee after a telephonic interview was finally granted by Examiner Kim after numerous attempts to reach him were finally acknowledged (an Examiner-required "Interview Agenda" for the interview being lost in early August after multiple transmittals, and subsequent numerous attempts for scheduling the interview after yet

more transmissions of the agenda were ignored by the Examiner). An interview was sought in this case due to the long pendency of the application, nearly 7 years from the priority filing date and the fact that the Examiner Kim was new to the case. The Examiner finally contacted the Applicant regarding scheduling the telephonic interview only after the Notice of Appeal was filed on November 13, 2003 (with the USPTO requiring the Applicant to pay an additional three month extension of time -- Applicant being notified that the amendment-after-final did not stop the statutory clock). A response on the amendment-after-final filed September 13, 2003 was not mailed from the USPTO until December 16, 2003.

While the amendment-after-final made only a single amendment specifically requested by the Examiner in the Office Action of May 12, 2003, *viz.* to change the word "good" to the word "item" in Claim 8, the single amendment was not entered by the Examiner as the Examiner deemed the amendment not "to place the application in better form for appeal by materially reducing or simplifying the issues for appeal." Appendix A, comprising pages 27 – 31 of this response, sets forth the claims as pending before the board.

Summary of the Invention

For the Board's convenience the summary of the invention presented in Applicant's Appeal Brief is set forth below:

Appellant's invention comprises a computer-assisted system for automatically storing personal information on the purchaser of a product and correlating such information with a unique identifier placed on the product by any means, including an unique identifier applied in electronically-readable coded form that is decipherable by an electro-optical reader (specification, page 5, lines 12 – 14, page 15 lines 19 – 21, page 16, lines 13 - 16), and in one embodiment by directing high energy electromagnetic waves in a molten or semi-molten state (specification, page 5, line 16 – page 6, line 10). Electronic correlation of a products' purchaser is made with the unique identifier on the

product (specification, page 13, lines 5 – 6), for example at the point of retail sale, allowing for identification of the last recorded purchaser upon retrieval of the product with the unique identifier (specification, page 30, lines 1 – 3). Correlation of the unique identifier with the purchaser information may be efficiently and quickly performed by reading from the package surrounding the product an electronically-readable package identifier correlateable with the product identifier (Specification, page 21, lines 5 – 11). The electronically-readable package identifier and/or product identifier (Specification, page 9, lines 14 – 15) may include information pertaining to the manufacturer of the good (Specification, page 8, lines 19 – 21), allowing for decentralized application of unique identifiers to products.

Issues Presented for Review

The Examiner in the February 2, 1999 Office Action (Appendix B) has raised several grounds of rejection which are encompassed by the following issues:

ISSUE 1: *Whether the Examiner's assertion that U.S. Patent No. 4,822,973 to Fahner et al. "teaches a method for encoding concealed identifier on an item, the method includes directing electromagnetic laser beams for laser 10 to a molten plastic material 14 on a part, the beams forming a unique identifier (see figures 3 and 4 and col. 4, lines 24 – 29)" is incorrect and whether such reference anticipates the subject matter of claims 26 and 27.*

ISSUE 2: *Whether claims 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 19, 20, 21, 28, 29, 30, and 31 are made obvious by, and unpatentable over, U.S. Patent No. 5,434,394 to Roach et al. in view of U.S. Patent No. 5,646,365 to Collier, and with respect to claims 12 and 16 further in view of U.S. Patent No. 5,592,561 to Moore, and with respect to claims 13 and 14 further in view of U.S. Patent No. 5,623,552 to Lane.*

ISSUE 3: *Whether the Examiner abused his discretion in failing to enter the amendment-after-final which contained solely one amendment, that is amendment of claim 8 in a manner indicated by the Examiner in the final office action to be needed to overcome the Examiner's 35 U.S.C. 112, second paragraph rejection, "antecedent basis" problem, and whether such an "antecedent basis" problem exists?*

ISSUE 4: *Whether claim 18 is appropriately rejected as being of improper dependent form for failing to further limit the subject matter of a previous claim?*

Grouping of the Claims

For the reasons expounded upon below, (a) claims 26 and 27 stand or fall together; claims 8, 9, 12, 13, and 14 stand or fall together; (b) claims 15, 16, and 19 stand or fall together; (c) claims 10 and 11 stand or fall together; (d) claims 18, 29 and 30 stand or fall together; and (e) claims 20, 21, 28, and 31 stand or fall alone.

Claims 26 and 27 stand or fall together as the claim one particular type of encoding method for encoding concealed unique identifiers on products which comprise steps found by the first examiner in the prosecution to be patentable, acknowledged by the second examiner in the prosecution of the case to be patentably distinct in an interview summary after initial rejection by such second examiner, and found by the third examiner in the case to be anticipated by the same reference before the first two examiners.

Claims 8, 9, and 12 stand or fall together as each requires a product with a unique item identifier within a package having a visibly electronically-readable identifier correlateable with the unique item identifier being accepted from a purchaser in a retail setting, the unique package electronically-readable identifier being read by an electro-optical reader, and an identity card with electronically-readable personal identification information being accepted from the purchaser and such identity card being read by an electro-optical reader, so as to record the identity of the purchaser of the particular item.

Claims 13 and 14 stand or fall together in that each recites the use of a self-authenticating electronically-readable coded identity card in the method of claim 8.

Claims 15, 16, and 19 stand or fall together as they all relate to a process for encoding an item with an identifier uniquely correlateable with the item which is in

electronically-readable coded form in which the unique item identifier identifies the manufacturer of the item as well as comprises indicia specifically identifying the item and the package identifier is not only correlateable with the unique item identifier by also identifies the type of item, and the item's manufacturer.

Claims 10 and 11 stand or fall together as each relates to the method of claim 8 wherein the package identifier and personal identification information regarding the purchaser are printed on a medium, and in particular a sales receipt in electronically readable coded form.

Claims 29, 30 and 31 stand or fall together as each relates to product with an unique item identifier in electronically-readable coded form within a package having a visibly electronically-readable package identifier correlateable with the unique item identifier wherein the package identifier comprises information pertaining to the characteristics of the item.

Claims 18, 20, 21, 28 stand or fall alone. Claim 18 is independently patentable over the other claims in asserting a product with an unique item identifier in electronically-readable coded form within a package having a visibly electronically-readable package identifier correlateable with the unique item identifier. Claim 20 is independently patentable over the other claims in asserting a method of identifying a record owner of an item having a unique item identifier. Claim 21 is independently patentable over the other claims in that it asserts a processor-assisted method of recording the identity of a person purchasing a product having a unique item identifier, and packaged in a package having a package identifier correlateable with the unique item identifier, when such purchase is made over a data processing telecommunication network. Claim 28 is independently patentable over the other claims in that it asserts a process for ascertaining whether an item having an unique item identifier is the same item identified on a medium, such as a sales slip. Claim 31 is independently patentable over the other claims in that it asserts that the package identifier comprises information

pertaining to add-ons (e.g., such as accessories available for sale with the product) associated with the item within the package.

Argument

ISSUE 1: *Whether the Examiner's assertion that U.S. Patent No. 4,822,973 to Fahner et al. "teaches a method for encoding concealed identifier on an item, the method includes directing electromagnetic laser beams for laser 10 to a molten plastic material 14 on a part, the beams forming a unique identifier (see figures 3 and 4 and col. 4, lines 24 – 29)" is correct and whether such reference anticipates the subject matter of claims 26 and 27 .*

- CLAIM GROUP: 26 and 27

Claims 26 and 27 have been rejected by Examiner Kim as anticipated by U.S. Patent No. 4,822,973 to Fahner *et al.* This rejection is made despite the fact that parallel, if not identical, claims have been found allowable by the two previous Examiners. Such rejection comes on the heals of a rejection, and then reversal, by Examiner Kim of yet another claim which had previously been allowed in this case (see, claim 17 and its allowance by Examiner Tremblay).

Applicant notes that Examiner Tremblay allowed claim 2 in the office action of April 9, 1997, which present claim 26 parallels (and from which claim 27 depends), noting that "the prior art of record fails to teach or suggest the encoding of concealed identifiers while the material is still in a molten or semi-molten state," and that "while the difficulties in obtaining sufficient laser power are discussed in many of the disclosures, nothing in the prior art suggests treating an article in a molten or semi-molten state." While Examiner Taylor rejected the same claim in his only office action, dated October 4, 2002, he agreed during interview that "the existing art does not teach the embedding of the code within the material of the item, the material in a molten or semi-material, not the material equivalent to a thermoplastic." (Interview Summary of October 29, 2002 in Washington D.C.). Regardless of Examiner's Taylor turn in position, the same claim is now rejected as ANTICIPATED by Examiner Kim in his final office action

of May 13, 2003 based on a reference, Fahner *et al.*, that was specifically considered by Examiner Tremblay in March of 1997 (before allowing then claim 2) and Examiner Taylor before making his summary statement concurring in patentability in the interview summary of October 29, 2002!

Applicant has unsuccessfully attempted to explain that the term "thermoplastic" would not be equated by one of ordinary skill in the art to "molten or semi-molten material." The Examiner's suggestion on interview that Applicant modify the term "thermoplastic" with respect to such claims respectfully makes no sense as the claims do no use the term "thermoplastic," rather the Fahner reference he has cited uses the term "thermoplastic."

The simple fact is that the Examiner is factually incorrect in equating a "thermoplastic" with a "molten or semi-molten material." Thermoplastic material would be understood by those in the art as referring to the type of plastic being used, not as referencing to molten or semi-molten material! (claim 26 and 27). As demonstrated at Exhibit B hereto (page 32 of the response -- excerpts from Kirk-Othmer, *Concise Encyclopedia of Chemical Technology*, p. 400 and *Hawley's Condensed Chemical Dictionary* (2001)), one of ordinary skill in the art would understand that '[t]hermoplastic resins are polymeric structures that soften or melt at elevated temperatures, allowing them to be processed into fabricated products that, when cooled, recover the physical and chemical properties of the original resin" and that the term "[t]hermoplastic" references "[a] high polymer that softens when exposed to heat and returns to its original condition when cooled to room temperature".

As anticipation requires that every limitation asserted in a claim be contained expressly or inherently in the prior art reference, *Union Carbide Chemicals & Plastics Technology Corp. v. Shell Oil Co.*, 308 F.3d 1167, 1188, 64 U.S.P.Q.2d 1545 (Fed. Cir. 2002), Applicant respectfully asserts that there is no anticipation in this case. Support for the lack of anticipation is found in light of the prior statements by both previous Examiners, in particular the allowance by Examiner Tremblay of prior claim 2.

In sum, Applicant asserts that both claims are allowable (claim 27 being allowable for the reasons of claim 26 on which it depends).

ISSUE 2: *Whether claims 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 19, 20, 21, 28, 29, 30, and 31 are made obvious by, and unpatentable over, U.S. Patent No. 5,434,394 to Roach et al. in view of U.S. Patent No. 5,646,365 to Collier, and with respect to claims 12 and 16 further in view of U.S. Patent No. 5,592,561 to Moore, and with respect to claims 13 and 14 further in view of U.S. Patent No. 5,623,552 to Lane.*

The Examiner asserts that claims 8 – 11, 15, 18 – 21 and 28 – 31 under 35 U.S.C. §103(a) are unpatentable over U.S. Patent No. 5,434,394 to Roach *et al.* (the "Roach reference") in view of U.S. Patent No. 5,646,365 to Collier ("the Collier reference"). Applicant respectfully traverses the Examiner's 35 U.S.C. § 103(a) rejections of claims 8 – 11, 15, 18 – 21 and 28 – 31 based in part on the failure of the Examiner to recite adequate motivation for combining the references in the manner indicated, and based in part on the inappropriate use by the Examiner of "hindsight reasoning" in an attempt to "approximate" the present invention, and lastly on the basis that many of the Examiner's assertions are simply not factually accurate in respect to the disclosures of the references.

The determination of obviousness rests on whether the claimed invention as a whole would have been obvious to a person of ordinary skill in the art at the time the invention was made. *Kahn v. General Motors Corp.*, 135 F.3d 1472, 45 U.S.P.Q.2d 1608 (Fed. Cir. 1998). In determining obviousness, four factors should be weighed: (1) the scope and content of the prior art, (2) the differences between the art and the claims at issue, (3) the level of ordinary skill in the art, and (4) whatever objective evidence may be present. *Graham v. John Deere Co.*, 383 U.S. 1 (1966); *Panduit Corp. v. Dennison Mfg. Co., 810 F.2d 1561, 1 U.S.P.Q.2d 1593* (Fed. Cir. 1987), *cert. denied*, 481 U.S. 1052 (1987). The Examiner carries the burden under Section 103 to establish a *prima facie* case of obviousness, *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988), and

must show that the reference(s) relied on teach or suggest all of the limitations of the claims. *In re Wilson*, 424 F.2d 1382, 1385 (C.C.P.A. 1970).

A *prima facie* case of obviousness requires that a motivation be provided to modify a reference. *In re Chu*, 66 F.3d 292, 36 U.S.P.Q.2d 1089 (Fed. Cir. 1995). There must be some explicit teaching or suggestion in the art to motivate one of ordinary skill to combine the references in the manner suggested. *See, Arkie Lures, Inc. v. Gene Larew Tackle, Inc.*, 119 F.3d 953, 957, 43 U.S.P.Q.2d 1294 (Fed. Cir. 1997); *Fromson v. Anitec Printing Plates, Inc.*, 132 F.3d 1437, 45 U.S.P.Q.2d 1269 (Fed. Cir. 1997); *In re Jones*, 958 F.2d 347, 21 U.S.P.Q2d 1941 (Fed. Cir. 1992). It insufficient that the prior art discloses components of a claim. *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 15 U.S.P.Q2d 1321 (Fed. Cir. 1990). When determining the differences between the prior art and the claims at issue, it is essential to view the claims at issue as "the invention as a whole." 35 U.S.C. § 103. It is legally improper to focus on the obviousness of substitutions and differences between the claimed invention and the prior art rather than on the obviousness of the claimed invention *as a whole* relative to that prior art. *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1383, 231 U.S.P.Q. 81, 93 (Fed. Cir. 1986), *cert. denied*, 480 U.S. 947 (1987).

Conclusory statements about prior art teachings, as Applicant notes below with respect to numerous statements by the Examiner, do not adequately address the factual issue of motivation to combine references. *In re Lee*, 277 F.3d 1338, 61 U.S.P.Q.2d 1430 (Fed. Cir. 2002). The factual inquiry whether to combine references "must be thorough and searching," *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351 – 1352, 60 U.S.P.Q.2d 1001, 1008 (Fed. Cir. 2001), and cannot 'be resolved on subjective belief and unknown authority (*In re Lee*, 277 F.3d 1338, 1343-44, 61 U.S.P.Q.2d 1430, 1434 (Fed. Cir. 2002). The mere fact "that the prior art may be modified in [a] manner suggested by [an] Examiner does not make the modification obvious unless the prior art suggest[s] the desirability of the modification." *In re Fritch*, 972 F.2d 1260, 1266, 23 U.S.P.Q.2d 1780, 1784 (Fed. Cir. 1992).

Applicant respectfully asserts that the Examiner is using impermissible hindsight in "[d]efining the problem in terms of its solution ... in the selection of the prior art relevant to obviousness." *Monarch Knitting Machinery Corp. v. Fukuhara Industrial & Trading Co., Ltd.*, 139 F.3d 977, 45 U.S.P.Q.2d 1977 (Fed. Cir. 1998).

- CLAIM GROUP: 8, 9, and 12

The Examiner asserts that U.S. Patent No. 5,434,394 to Roach *et al.* teaches "a computer assisted method of recording the identity of a purchaser at a retail setting" and describes "a card reader in the terminal" reading an "optically encoded identity card" in "tandem with the bar code on [a] good" selected by a customer. The Examiner acknowledges that the Roach reference does not disclose "that the good is enclosed within a package, the package having a bar code, which is correlateable with the good's bar code." Attempting to find such a teaching in the prior art, the Examiner cites to U.S. Patent No. 5,646,35 to Collier which he states "teaches the purchasing of gun bullets, the bullets having a bar-coded good identifier therein under an outer surface of the bullet .. [with the] good identifier reflect[ing] the type of bullet, the lot and the manufacturer of the bullet." The Examiner further asserts that "[t]he bar code on the package would correlate with the bar code on the bullet."

Applicant first notes that U.S. Patent No. 5,434,394 to Claims 8, 9, 12, 13 and 14 specify that each item have a "unique item identifier" something lacking, as more fully explained below, in both the Roach and Collier references. The "unique item identifier" of the present invention permits a particular item to be associated with its purchaser (See, *e.g.*, Fig. 6 wherein a particular star is able to be matched up with the purchaser who lost it). Further, the unique item identifier associated with the item identifies the manufacturer of the item. The later permits different manufacturers to use their own identification scheme without the need for some sort of national consensus and some "national computer database," as the Examiner asserts the Collier reference teaches (See, page 5, line 3, of the Final Office Action: "These information would be held within a national computer database") (*n.b.*, in this sense the Collier reference actually teaches

away from the present invention -- "teaching away" from the art is a *per se* demonstration of lack of *prima facie* obviousness. *In re Dow Chemical Co.,* 837 F.2d 469, 5. U.S.P.Q.2d 1529 (Fed. Cir. 1988); *In re Neilson*, 816 F.2d 1567, 2 U.S.P.Q.2d 1525 (Fed. Cir. 1987)). Further, the claims require that the package identifier correlate with the unique item identifier(s) of the items enclosed in the package, something not possible as indicated above neither reference teaches or suggests a "unique item identifier." The actual particular item to be purchased is provided by the purchaser at the point of sale along with a identity card housing electronically-readable personal identification information, and such information is stored along with "information pertaining to the manufacturer of the item," again in order to allow for unique identification of items without the need for manufacturers to form some sort of national consensus about identification schemes and use of identifiers. Respectfully, the Examiner's combination of references, even if a motivation existed for combining the same (which Applicant asserts the Examiner has failed to provide), do not teach, disclose or suggest the subject matter of such claims as they lack these fundamental elements.

Applicant respectfully asserts that the Examiner reads teachings into the Roach *et al.* and Collier references that simply do not exist there. Applicant's repeated requests (see, *e.g.,* the Response to the Office Action of May 12, 2003) that the Examiner specifically indicate where in the references such purported teachings are made have been unanswered.

The Examiner asserts that the Roach reference teaches a method of recording the identity of a purchaser at a retail setting, and implies that such recordation is made with respect to the actual item purchased. This simply is not so. The unique membership card that identifies the customer is used only to associate the customer with the type of good that the customer wishes to buy, not the item itself (see, *e.g.,* col. 2, lines 3 -6: "the sale transaction computers read a unique membership card which identifies the customer, and universal product code label which identifies the merchandise to be purchased). The terminal does not read a code on the good actually purchased, rather

"[o]nce the merchandise is selected at the point of decision, the point of sale system sends information to the warehouse facility to enable the merchandise to be picked from the warehouse and sent to the delivery location, thereby minimizing the wait time required for the customer to take possession of the merchandise" (col. 2, lines 14 – 21). That is, for example, a particular toaster is not associated with the person purchasing the item, rather only the type of toaster is associated with the person. Further, the item is not provided by the purchaser as indicated in claims 8, 9 and 12 ("accepting from a purchaser at a point of retail sale an item encoded with a unique item identifier"), rather the item is selected by a warehouse facility employee based on solely the UPC code.

In respect of the Collier reference the Applicant cannot find any support in the Collier reference for the Examiner's assertion that the identifier associated with the bullets of Collier "reflect[ ] the type of bullet, the lot, and manufacturer of the bullet." Again Applicants repeated requests that the Examiner provide support in the reference for such characterization have been ignored, suggesting such statement is nothing more than hindsight reasoning. Further, the Examiner is incorrect in his assertion that that the Collier reference teaches an unique item identifier, rather the reference clearly teaches at col. 3, lines 52 – 53: "All the bullets included in the packaging have the same identification number or code".

Respectfully, Applicant asserts that the Examiner reads into the "automated order and delivery system" of U.S. Patent No. 5,434,394 to Roach, and the identification-tag containing bullets of U.S. Patent No. 5,646,365 to Collier, teachings that are found in neither reference, including a unique item identifier on each item, a inputting at a point of sale by an electro-optical reader through scanning of a package identifier of information pertaining to the unique item identifier, and information pertaining to the manufacturer of the item, and correlation of the purchaser with the particular item proffered by the purchaser at the point of retail sale. The Examiner provides no motivation for one of ordinary skill in the art to provide these missing elements based on the references of record, and as Applicant asserts that such missing

elements would be unobvious to one of ordinary skill in the art at the time of the invention, Applicant respectfully requests that the rejection of claims 8, 9, and 12 be reversed.

In regard to the citation of U.S. Patent No. 5,592,561 to Moore for the teaching that a code may "not [be] observable under visible light and can be readable under non-visible light," in respect of claim 12, Applicant does not maintain that the invisible coding of the item is (but asserts that claim 12 is patentable for the reasons set forth above) the basis of patentability of for such claim, or that invisible coding is unknown in the art.

- CLAIM GROUP: 13 and 14

Claims 13 and 14 stand or fall together in that each recites the use of a self-authenticating electronically-readable coded identity card in the method of claim 8.

The Examiner asserts that claims 13 and 14 are unpatentable under 35 U.S.C. § 103 (a) over U.S. Patent No. 5,434,394 to Roach *et al.* as modified by U.S. Patent No. 5,646,635 to Collier, and further in view of U.S. Patent No. ,5623,552 to Lane. The Examiner asserts that "Lane teaches a smart card, that can be used at a plurality of locations, the card containing a microprocessor and means for self authentication and identification of the card holder" and that "[i]t would have been obvious to one of ordinary skill in the art to provide such a card, as the smart card processor allows more data to be stored within the memory of the card and the authentication means allows the cardholder to verify identity without extensive assistance from a retail terminal and/or the terminal's operator ... [w]hen purchasing goods at a retail terminal, as customer would enjoy the ability to identify his or herself in an expeditious manner, as the self-authenticating card would provide" (page 6, lines 6 – 15, of the Final Office Action).

Applicant asserts that claims 13 and 14 are patentable for at least the reasons set forth above in regard to clam 8 from which the depend. Applicant further

argues that the Lane reference in combination with the Collier and Roach references provides no motivation for using a self-authenticating electronically-readable coded identity card for the purpose of recording identity information pertaining to a purchaser to the actual item purchased.

The Examiner provides no motivation for the use of a self-authenticating identity card in the method of claim 8 other than that a purchaser might be prone to use such a card to store information thereon or expeditiously identify the purchaser to the seller. Applicant asserts that such motivation is inadequate under the law. Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination," *Carella v. Starlight Archery and Pro Line Co.*, 804 F.2d 135, 140, 231 U.S.P.Q. 644, 647 (Fed. Cir. 1986) (emphasis added), and such combination "must be based on objective evidence of record" (*In re Lee*, 227 F.3d 1338, 1343-44, 61 U.S.P.Q.2d 1430, 1434 (Fed. Cir. 2002). A *prima facie* case of obviousness requires that a motivation be provided to modify a reference in the manner suggested by the Examiner. *In re Chu,* 66 F.3d 292, 36 U.S.P.Q.2d 1089 (Fed. Cir. 1995). A mere statement that the modification is "well within the ordinary skill in the art at the time the claimed invention was made" is not sufficient to establish a *prima facie* case of obviousness. *Ex parte Levengood*, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993).

The usefulness of the self-authenticating card is not obvious (as shown by the Examiner's own misunderstandings in respect of the usefulness of the card). The self-authenticating card of the present invention greatly reduces the possibility that one can fabricate that they purchased an identifiable item at one or another time.

Applicant therefore respectfully urges that the Examiner's assertion in regard to these claims is hindsight reasoning, and thus that the claims are patentable.

- CLAIM GROUP: 15, 16, and 19

Claims 15, 16, and 19 relate to a process for encoding an item with an unique item identifier which is in electronically-readable coded form, the unique item identifier identifying the manufacturer of the item as well as comprising indicia specifically identifying the item, and incorporating the same into a package having a package identifier that is not only correlateable with the unique item identifier by also identifies the type of item, and the item's manufacturer.

Applicant can find no support for the Examiner's assertion that the Collier reference teaches the identifier on the bullet may be in electronically-readable coded form, that is his indication that the "Collier teaches the purchasing of gun bullets, the bullets having a bar-coded good identifier therein under an outer surface of the bullet "(See, page 4, lines 22 – 23, of the Final Office Action). Applicant respectfully asserts the Examiner's repeated refusal to point out support for such statement in the reference confirms the same (see, e.g., Applicant's request at page 14, line 6 – 7, of the Response to Office Action May 13, 2003). The Collier reference teaches a "tag" not any identifier, and in particular a tag having an identification number or code "imprinted" (col. 3, lines 20 – 22) on a material which can withstand high heat: "an identification tag [] imprinted with an identification number or code" (col. 3, lines 20 – 22), and is of "thermal resistant material" (col. 4, line 4) which can "withstand the temperature of [ ] molten lead" (col. 3, line 16. While the reference refers to a bar code on the exterior of the package, Applicant does not find a reference to a bar code on the identification tag anywhere in the reference such as stated by the Examiner. Instead the reference indicates the indicia on the tags associated with the bullets are other than a bar code "[t]he number or code on the identification tag is then read and input into the computer" (col. 4, lines 5 – 9), the identifier on the tag must remain readable after heating of the bullet (col. 4, lines 1 – 2), and in that the reference states that "the identification tag is retrieved from the spent bullet ... [and] the retrieved identification tag [ ] matched with the identification tag code

in the catalog" (col. 1, lines 63 – 67). While not directly pertinent to the claims at hand, the Applicant further notes that the Examiner is incorrect that Collier teaches that the item identifier is "under a surface of the bullet," but rather the reference actually states that the identifier "must be small enough to fit within the jacket of the bullet" (col. 3, lines 32 – 33) (see also, col. 3, line 46, of the Collier reference wherein it states the identification tag "is inserted into the bullet jacket," and col. 1, lines 54 -55 which states the identification is "in the lead core.").

The Roach reference on the other hand neither teaches, discloses, or suggests anything in regard to the item itself having identification information associated therewith, nor information pertaining to the manufacturer of the item, but rather only indicates that a UPC code associated with an item, which generally describes a class of goods, can be matched upon request by a purchaser for a particular UPC-labelled good.

As neither reference supplies this missing element as well, it is asserted that these claims are patentable both for the reasons set forth in regard to Claim Group 8, 9, 12, 13, and 14, in particular with respect to the package identifier, as well as for reciting the unobvious element of having the item associated with an unique item identifier in electronically-readable coded form.

In regard to the Examiner's citation of U.S. Patent No. 5,592,561 to Moore for the teaching that a code may "not [be] observable under visible light and can be readable under non-visible light," in respect of claim 16, Applicant does not maintain that the invisible coding of the item makes the claim patentable in itself (but asserts that claim 16 is patentable for the reasons set forth above), nor does Applicant assert that invisible coding was not known at the time of the invention.

- CLAIM GROUP: 10 and 11

Claims 10 and 11 relate to the method of claim 8 wherein the package identifier and personal identification information regarding the purchaser are printed on a medium, and in particular a sales receipt in electronically readable coded form.

The Examiner asserts that such is disclosed by Roach in that "[a] sales receipt can be printed out by the terminal to reflect the purchase. In addition, the customer may also wish for the good to be delivered to his/her address." Respectfully, Applicant fails how such statements, even if found in the Roach reference, support a finding that taken together disclose printing the package identifier and personal identification information on a medium such as a sales receipt. Further, once more, the Examiner provides no specific support in the reference for such statements, and Applicant is unable to find support for such statement in the Roach reference.

As indicated in specification, among other places, at page 26, recording of such information on medium such as a bill of sale, receipt, etc., permits owner-product information to be updated from the medium itself. Such simply is not disclosed, taught, or suggested in any manner by either the Roach or Collier reference, and the Examiner's unsupported statements with respect thereto are a non-sequitor. For such reasons, Applicant asserts that claims 10 and 11 are patentable for the reasons set forth in regard to claim 8 above, as well as their recitation of the recordation of a package identifier and personal identification information regarding the purchaser of claim 8 on a medium, such as a sales receipt, in electronically readable coded form.

- CLAIM GROUP: 29, 30 and 31

Claims 29, 30 and 31 relate to product with an unique item identifier in electronically-readable coded form within a package having a visibly electronically-readable package identifier correlateable with the unique item identifier wherein the

package identifier comprises information pertaining to the characteristics of the item. The product is produced by the process of claim 15.

The Examiner asserts with respect to claims 29 and 30 that "[a]s shown in figure 4a [of the Collier reference], product data can include dimensional information, which is a characteristic of the product" (page 5, line 10 – 11, of the Final Office Action). In respect of claim 31, the Examiner asserts that "in the embodiment disclosed in Roach, a product such as component parts of PC (i.e., monitors, speakers, headphones or other component parts or peripherals of a product) or other electronic goods can certainly be considered as add-on items" (page 4, lines 16 – 18, of the Final Office Action). The Examiner fails, however, to explain even if such disclosures are made in the references how such disclosures teach or suggest the subject matter of claims 29, 30 and 31 wherein the package identifier of a package enclosing an item with an unique item identifier in electronically-readable coded form includes such item characteristic, dimensional or add-in information. The reason for this is clear, that is because the references do not teach, disclose, or suggest such package identifier.

Respectfully, as the Examiner has failed to meet his burden of making a *prima facie* case of obviousness in respect of claim 29, 30 and 31, the rejection with respect to these claims should be overturned.

- CLAIM GROUP: 18

Claims 18 stands or falls alone. Claim 18 is independently patentable over the other claims in asserting a product with an unique item identifier in electronically-readable coded form within a package having a visibly electronically-readable package identifier correlateable with the unique item identifier.

In regard to claim 18, as set forth above in regard to claim 15, Applicant fundamentally disagrees with the Examiner that the combination of references suggests a product (or a process for making the product) having a unique item identifier (as

discussed above, none of the references teach uniquely identified items) in electronically-readable coded form wherein the unique item identifier identifies the manufacturer of said item. Further, the combination of references do not suggest the packaging such item in a package having a package identifier in visible electronically-readable coded form which is correlateable with the unique item identifier, the package identifier also identifying the manufacturer. As such, Applicant urges the patentability of claim 18.

- CLAIM GROUP: 20

Applicant asserts that Claim 20 is independently patentable over the other claims in asserting a method of identifying a record owner of an item having a unique item identifier. Applicant notes no argument by the Examiner specifically indicating that the method of identifying the purchaser of a particular item as set forth in claim 20, is taught, disclosed, or suggested by any combination of references. Nor does the Examiner cite any of references as teaching, disclosing or suggesting that a process for identifying a purchaser of a particular item. Therefore, Applicant urges the patentability of such claim.

- CLAIM GROUP: 21

Applicant asserts that claim 21 is independently patentable over the other claims in that it asserts a processor-assisted method of recording the identity of a person purchasing a item having a unique item identifier, and packaged in a package having a package identifier correlateable with the unique item identifier, when such purchase is made over a data processing telecommunication network.

In support of his rejection, the Examiner indicates that U.S. Patent No. 5,434,394 to Roach *et al.* discloses "[a] telecommunications network ring 34 [that] provides a means of digitally sending information relating to the good, purchaser, and delivery instructions to and form a headquarters network 8 or to a warehouse 40."

Again, Applicant notes that the references do not teach, disclose or suggest an item having a unique item identifier thereon or a package identifier in electronically-

readable coded form correlated with such unique item identifier and comprising information identifying the manufacturer of said item. Further there is no indication in any of the references that a unique item identifier is associated with a person who desires a good after receiving information that the good is physically available and the unique item identifier of the good that is ultimately to be shipped has been selected. Respectfully, such is not shown or implied by the references of record, and Applicant is not, as apparently thought by the Examiner, trying to claim novelty in a telecommunication network ring receiving information pertaining to a good, a purchaser, and delivery instructions with respect to the goods. Thus Applicant asserts that claim is patentable.

- CLAIM GROUP: 28

Applicant asserts that claim 28 stands or fall alone, in that it asserts a process for ascertaining whether an item having an unique item identifier is the same item identified on a medium, such as a sales slip. Applicant repeats his arguments in respect of claim group 10 and 11 with respect to the patentability of claim 28. As the Examiner has failed to demonstrate that any of the references of record, alone or in combination, show the process of comparing an unique item identifier on a item with electronically-readable coded form information on a medium, Applicant asserts that this claim is independently patentable as well.

ISSUE 3: *Whether the Examiner abused his discretion in failing to enter the amendment-after-final which contained solely one amendment, that is amendment of claim 8 in a manner indicated by the Examiner in the final office action to be needed to overcome the Examiner's 35 U.S.C. 112, second paragraph rejection, "antecedent basis" problem, and whether such an "antecedent basis" problem exists?*

- CLAIM GROUP: 8

As stated at M.P.E.P. 714.13, the refusal to enter a proposed amendment should not be arbitrary. Any proposed amendment should be given sufficient consideration to determine whether issues on appeal are simplified.

Claim 8 was rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner asserts that the limitation "said good" in line 9 of the claim does not have sufficient antecedent basis, and suggested that the word "good" be changed to "item."

Adopting the Examiner's suggestion, Applicant amended claim 8 to replace "good" with "item." While the later was the only amendment made to the claims, the Examiner in the Office Action of December 16, 2003, rejected this amendment-after-final based on an assertion that the amendment was "not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal."

Applicant respectfully asserts that the Examiner's failure to amend the claims specifically in a manner suggested by him was an abuse of the Examiner's discretion.

ISSUE 4: *Whether claim 18 is appropriately rejected as being of improper dependent form for failing to further limit the subject matter of a previous claim?*

- CLAIM GROUP: 18

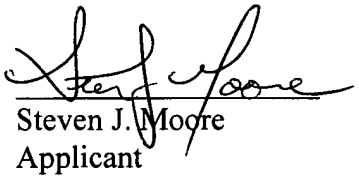
In the Examiner Final Office Action, claim 18 was objected to under 37 C.F.R. § 1.75(c) as being improper dependent form for failing to further limit the subject matter of a previous claim. The Examiner asserts that there is no product defined in claim 15, and that therefore claim 18 does not further limit the subject matter of a previous claim.

Applicant respectfully disagrees with the Examiner. A product-by-process claim, which is a product claim that defines the claimed product in terms of the process by which it is made, is proper. *In re Luck*, 476 F.2d 650, 117 U.S.P.Q. 523 (C.C.P.A. 1973); *In re Pilington*, 411 F.2d 1345, 162 U.S.P.Q. 145 (C.C.P.A. 1969); *In re Steppan*, 394 F.2d 1013, 156 U.S.P.Q. 143 (C.C.P.A. 1967). As stated in M.P.E.P. § 2173.05(p) "[a] claim to a device, apparatus, manufacture, or composition of matter may contain a reference to the process in which it is intended to be used without being objectable under 35 U.S.C. § 112, second paragraph, so long as it is clear the claim is direct to the product and not the process." Therefore, Applicant respectfully urges the Board to overturn the Examiner's objection to the claim.

Summary

For all of the foregoing reasons, it is submitted that the Examiner's rejections of claims 8 – 16, 17, 18 – 21 and 26 - 31 were erroneous, and reversal of the Examiner's decisions is respectfully requested.

Respectfully submitted,



Steven J. Moore
Applicant

APPENDIX A

APPENDIX OF CLAIMS AS PENDING

1. **(CANCELED)**

2. **(CANCELED)**

3. **(CANCELED)**

4. **(CANCELED)**

5. **(CANCELED)**

6. **(CANCELED)** .

7. **(CANCELED)**

8. **(PREVIOUSLY PRESENTED)** A computer-assisted method of recording an identity of a purchaser of a particular item in a retail setting comprising:

accepting from a purchaser at a point of retail sale an item encoded with a unique item identifier, said item identifier identifying the manufacturer of said item and comprising indicia specific to said item, said item being enclosed in a package having a visible electronically-readable coded form package identifier correlateable with said indicia specific to said item;

accepting from said purchaser of said good at a point of retail sale an identity card housing electronically-readable personal identification information;

inputting at the point of sale by an electro-optical reader said personal identification information from said identity card into electronic storage;

inputting at the point of sale by an electro-optical reader into said electronic storage said visible electronically-readable coded form package identifier and information pertaining to the manufacturer of said item;

correlating said personal identification information with said package identifier and information pertaining to the manufacturer of said item in a computer database.

9. **(PREVIOUSLY PRESENTED)** The method of claim 8 further comprising the step of transferring said correlated data to a shared database with other retailers.

10. **(PREVIOUSLY PRESENTED)** The method of claim 8 further comprising the step of: providing at least a portion of said unique item identifier to the purchaser in electronically readable coded form on a medium .

11. **(PREVIOUSLY PRESENTED)** The method of claim 10 further comprising the step of: printing said package identifier and said personal identification information on a sales receipt in electronically readable coded form.

12. **(PREVIOUSLY PRESENTED)** The method of claim 8 wherein the item identifier is invisible in visible light.

13. **(PREVIOUSLY PRESENTED)** The method of claim 8 wherein the identity card is a self-authenticating electronically-readable coded identity card.

14. **(PREVIOUSLY PRESENTED)** The method of claim 8 wherein the identity card is a microcircuit technology card.

15. **(PREVIOUSLY PRESENTED)** A process for encoding an item with an identifier uniquely correlateable with said item:

coding an item with an unique item identifier in electronically-readable coded form, said unique item identifier identifying the manufacturer of said item and comprising indicia specifically identifying said item;

on said item or the packaging of said item, placing a package identifier, in visible electronically-readable coded form, which is correlateable with said unique item identifier, said package identifier identifying the type of item, the item's manufacturer, as well as identifying said indicia on said item.

16. **(PREVIOUSLY PRESENTED)** The process of claim 15 wherein the unique item identifier associated with the item is invisible.

17. **(PREVIOUSLY PRESENTED)** The process of claim 15 wherein the unique item identifier's position on said item is associated with the lot in which said item was manufactured.

18. **(PREVIOUSLY PRESENTED)** The product of the process of claim 15.

19. **(PREVIOUSLY PRESENTED)** The method of claim 15 wherein said visible electronically-readable package identifier which is placed on said item or the packaging of said item further identifies origin of manufacture.

20. **(PREVIOUSLY PRESENTED)** A computer-assisted method of identifying a record owner of the item, or part thereof, of claim 18 comprising:

obtaining the item;

determining the unique item identifier encoded on said item;

inputting said unique item identifier into a data processor operatively connected with a data base housing purchaser identity information correlated to unique item identifiers found on a plurality of items;

retrieving purchaser identity information correlated with said unique item identifier in said data base;

determining the identity of the purchaser(s) of said item from said purchaser identity information.

21. **(PREVIOUSLY PRESENTED)** A processor-assisted method of recording the identity of a purchaser of an item, having an unique item identifier thereon containing indicia specifically identifying the particular item, purchased through a data processing telecommunications network comprising:

receiving over a data processing telecommunications network a digital data signal comprising digital information relating to the order of a good, the identity of the orderer of the good, and the address to which the orderer of the good desires the

good to be transmitted, said digital data signal being transmitted from said orderer to a purveyor of said good;

transmitting from said purveyor, in response to said offerer's order, a digital data signal comprising a request for said good to a processor located at a site at which such good is physically available in a package said package having a package identifier in electronically-readable coded form correlateable with an unique item identifier said unique item identifier associated with the particular item comprising the packaged good, and comprising information identifying the manufacturer of said item and indicia specifically identifying said item;

receiving a digital data signal from form the site at which such good is physically available comprising digital information with respect to the package identifier; and

correlating in a database said package identifier digital information with said digital information pertaining to the identity of the offerer and the address to which the offerer desires the good to be transmitted.

22. **(CANCELED)**

23. **(CANCELED)**

24. **(CANCELED)**

25. **(CANCELED)**

26. **(PREVIOUSLY PRESENTED)** A method for encoding concealed unique identifiers on products comprising:

directing one or more high energy electromagnetic waves at a material in a molten or semi-molten state such that the wave(s) substantially converge at a point within the material;

altering the convergence point of said high energy electromagnetic wave(s) such that the three-dimensional structure of the molten or semi-molten material is disrupted such that an unique identifier is formed;

using the solidified material in the construct of a product.

27. **(PREVIOUSLY PRESENTED)** The method of claim 26 wherein the molten or semi-molten material is a plastic.

28. **(PREVIOUSLY PRESENTED)** A process for ascertaining whether an item having a unique item identifier in electrically-readable coded form, said unique item identifier identifying the manufacturer of said item and comprising indicia specific to said item, is the same item that is identified by information in electronically-readable coded form on a medium, said process comprising the steps of:

a) comparing said unique item identifier on said item with the electronically-readable coded form information on said medium;

b) determining that said item having said unique item identifier is the same as said item identified on said medium if the unique item identifier favorably compares with the electronically-readable coded form information of step a.

29. **(PREVIOUSLY PRESENTED)** The product of claim 18 wherein said package identifier further comprises information pertaining to characteristics of the item.

30. **(PREVIOUSLY PRESENTED)** The product of claim 29 wherein said package identifier comprises information pertaining to the dimensions or features of the item.

31. **(PREVIOUSLY PRESENTED)** The product of claim 29 wherein said package identifier comprises information pertaining to add-ons associated with the item.

APPENDIX B

(see attachments on definition of "thermoplastic")

KIRK-OTHMER

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All types of SBR use compounding recipes, as do other unsaturated hydrocarbon polymers that share the common ingredients of sulfur, accelerators, antioxidants, antiozonants, activators, fillers, and softeners or extenders. SBR requires less sulfur than natural rubber for curing. The usual range is 1.5–2.0 phr of sulfur; however, this range should be based on the rubber hydrocarbon only for oil-extended SBR. Because of their lower unsaturation, all styrene–butadiene rubbers are slower curing than natural rubber and require more acceleration. Processing SBR compounds is similar to that of natural and polybutadiene rubbers. The ingredients are mixed in internal mixers or on mills and may be extruded, calendered, molded and cured in conventional equipment.

Uses

About 65% of all SBR elastomer produced in the United States is used in the manufacture of passenger-car tires. Two expanding markets for SBR are adhesives (qv) and chewing gum. A wide variety of SBRs is available for adhesive applications, and several of the crumb forms were designed specifically for the adhesives industry.

The block styrenic copolymers are intended for applications in adhesives, caulks, sealants, coatings, food packaging, toys, tubing, sheeting, molding equipment, belting, shoe soles and heels, and miscellaneous uses.

R.G. BAUER
The Goodyear Tire & Rubber Company

S.S. Medvedev, *International Symposium on Macromolecular Chemistry*, Pergamon Press, New York, 1959, pp. 174–190.

THERMOPLASTIC ELASTOMERS

Thermoplastic resins are polymeric structures that soften or melt at elevated temperatures, allowing them to be processed into fabricated products that, when cooled, recover the physical and chemical properties of the original resin. Of the three classes of thermoplastic elastomers to be discussed, the styrene–diene block copolymers are the largest volume (> 50,000 metric tons), the thermoplastic polyurethanes are next (> 15,000 t), and copolyester ethers, the newest entry, are now > 2000 t.

Styrene–Diene Thermoplastic Block Copolymers

Preparation of styrene–diene block copolymers is achieved by forming a living polymer, a term coined to describe the product of a polymerization that has no termination or chain-transfer reactions. Shown in Table 1 is a comparison of mechanical properties of SBS block copolymers with vulcanized SBR and natural rubber illustrating the range inherent in the thermoplastic elastomers.

The chemical characteristics of the copolymers are determined by the nature of the components. Alteration of the chemical characteristics is achieved by altering one or more of the blocks.

The styrene–diene thermoplastic elastomers have excellent resistance to water, acids, and bases. Resistance to hydrocarbons, solvents, and oils is poor. The thermoplastic nature limits their utility to temperatures below 65°C depending on the stress. Elastic recovery, compression set, and creep properties are usually inferior to the chemically cross-linked elastomers.

Table 1. Typical Properties of ABA Thermoplastic Elastomers and Conventional Rubbers

	Kraton 1101[a]	Kraton 1107[b]	Natural rubber	SBR rubber
styrene, %	30	14		
tensile strength, MPa[c]	31.8	21.4	20.8	14.5
modulus at 300% ext, MPa[c]	2.8	0.7	3.5	2.1
elongation at break, %	880	1300	600	800
hardness, Shore A	71	37	55	45
specific gravity	0.94	0.92		

[a] SBS (styrene–butadiene–styrene).
[b] SIS (styrene–isoprene–styrene).
[c] To convert MPa to psi, multiply by 145.

Table 2. Typical Properties of Segmented Polyether Esters

4GT hard segment, %	33	58	
polymer melt temperature (by dsc[a]), °C	176	202	212
specific gravity	1.15	1.20	1.2
tensile strength, MPa (psi)	39.3 (5700)	44.1 (6400	47.5 (
elongation at break, %	810	760	510
flexural modulus, MPa (psi)	44.8 (6500)	206 (30,000)	493 (72
oil swell (ASTM NO. 3 oil, 7 days at 100°C), % vol increase	22.0	12.2	6.6

[a] Differential scanning calorimetry.

The SBS elastomers may be processed by a wide variety of techniques including solution processing, extrusion, calendering, injection molding, blow molding, and vacuum forming. Standard rubber and plastics equipment is useful for processing the elastomers.

Uses for the thermoplastic elastomers fall into two main sections primary raw materials for rubber products without vulcanization, modifiers to upgrade the qualities of the rubbers and plastics. The largest markets for the styrene–diene block copolymers are footwear adhesives (qv), and mechanical goods.

Thermoplastic Urethane Elastomers

Thermoplastic polyurethane (TPU) elastomers are a special class of urethanes that can be processed as plastics and as cements for a wide range of applications (see Urethane polymers). Generally, polyester-based materials are selected for high strength, tear, chemical and heat resistance, and polyether-based materials are selected for low temperature flexibility, high humidity conditions, and resistance to attack by fungi and bacteria.

Since urethane elastoplastics incorporate exceptional resistance to abrasion, fuel and oils, and have high tensile, tear- and load-bearing properties, and are available in a broad durometer range, they are candidates for demanding applications in such areas as automotive, sporting, general mechanical goods, fabric coatings, and biomedical applications such as intra-aortic balloons (see Prosthetic and biomedical devices).

Thermoplastic Copolyester–Ether Elastomers

Segmented copolyester–ethers represent a novel family of commercial thermoplastic elastomers derived from terephthalic acid (T), polytetramethylene ether glycol (PTMEG), and 1,4-butanediol. They offer an unusual combination of easy processing and high performance under environmental extremes (see Polyesters; Polyethers). The polyester–ether copolymers are prepared by titanate ester (tetrabutyl titanate)-catalyzed melt transesterification of a mixture of dimethyl terephthalate, polyether glycol, and excess 1,4-butanediol. Some typical physical properties are listed in Table 2.

The thermoplastic copolyester–ether elastomers commercialized as Hytrel by DuPont can be processed by injection, blow, compression, transfer, or rotational molding. Some of the many uses of these elastomers include as a replacement for cured rubber and rubber-metal parts with a one-component elastomer unit.

A.F. FINELLI
R.A. MARSHALL
D.A. CHUNG
The Goodyear Tire and Rubber Co.

A. Noshay and J.E. McGrath, *Block Copolymers: Overview and Critical Survey*, Academic Press, Inc., New York, 1976.

U.S. Pat. 3,265,766 (Aug. 9, 1965), G. Holden and R. Milkovich (to Shell Oil Co.).

U.S. Pat. 2,871,218 (Jan. 27, 1959), C.S. Schollenberger (to B.F. Goodrich Co.).

U.S. Pat. 3,651,014 (Mar. 21, 1972), W.K. Witsiepe (to E.I. du Pont de Nemours and Co., Inc.).

Hawley's

Condensed Chemical Dictionary

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in household thermometers. Mercury thermometers ranging up to 600C are available; the mercury is prevented from vaporizing by a pressurized inert gas inserted above the mercury column. Metal protection tubes for stem and bulb are necessary. The softening point of the glass is of primary importance; borosilicate glasses are satisfactory up to 500C, but Jena glass is required for higher temperatures. Minimum and maximum thermometers are so made as to retain their lowest and highest readings indefinitely; the latter are used for oil-well and other geothermal measurements.

There are several other types of thermometers: (1) Gas in which either the pressure at constant volume or the volume at constant pressure measure the temperature; these are used for extremely accurate thermodynamic determinations. The gases used are helium, nitrogen, and hydrogen. (2) Bimetallic, in which the sensing element consists of two strips of metals having different expansion coefficients; its range is from −185 to 425C. (3) Thermoelectric (thermocouple), in which measurement is made by the electromotive force generated by two dissimilar metals; its range is from −200 to 1800C. (4) Resistance, in which temperature is measured by change in the electrical resistance of a metal, usually platinum; its range is from −163 to 660C. (5) An optical fiber thermometer developed by NBS Center for Chemical Engineering has a range of up to 2000C. It is made from a single crystalline sapphire and is much more accurate than the existing standard. Based on fundamental radiation principles, it measures thermodynamic temperatures directly. See thermocouple; bimetal.

thermonuclear reaction. See fusion.

thermoplastic. A high polymer that softens when exposed to heat and returns to its original condition when cooled to room temperature. Natural substances that exhibit this behavior are crude rubber and a number of waxes; however, the term is usually applied to synthetics such as polyvinyl chloride, nylons, fluorocarbons, linear polyethylene, polyurethane prepolymer, polystyrene, polypropylene, and cellulosic and acrylic resins.
See thermoset.

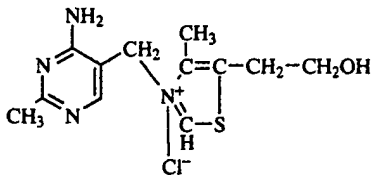
thermoset. A high polymer that solidifies or "sets" irreversibly when heated. This property is usually associated with a cross-linking reaction of the molecular constituents induced by heat or radiation, as with proteins, and in the baking of doughs. In many cases, it is necessary to add "curing" agents such as organic peroxides or (in the case of rubber) sulfur. For example, linear polyethylene can be cross-linked to a thermosetting material by either radiation or chemical reaction. Phenolics, alkyds, amino resins, polyesters, epoxides, and silicones are usually considered to be thermosetting, but the term also applies to materials in which additive-induced cross-linking is possible, e.g., natural rubber.

THF. Abbreviation for tetrahydrofuran.

thia-. Prefix indicating the presence of sulfur in a heterocyclic ring.

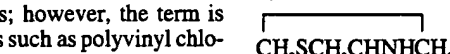
thiabendazole. (4-[2-benzimidazolyl]thiazole). CAS: 148-79-8. $C_{10}H_7N_3S$.
Properties: White to tan crystals. Mp 304C. Slightly soluble in water, alcohols, and chlorinated hydrocarbons; soluble in dimethylformamide.
Use: Fungicide effective on citrus fruits, anthelmintic.

thiamine. (3-(4-amino-2-methylpyrimidyl-5-methyl)-4-methyl-5, β-hydroxy-ethylthiazolium chloride; vitamin B_1). $C_{12}H_{17}ClN_4OS$. The antineuritic vitamin, essential for growth and the prevention of beriberi. It functions in intermediate carbohydrate metabolism in coenzyme form in the decarboxylation of α-keto acids. Deficiency symptoms: emotional hypersensitivity, loss of appetite, susceptibility to fatigue, muscular weakness, and polyneuritis.



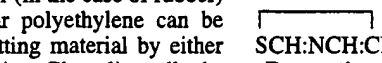
Source: Enriched and whole-grain cereals, milk, legumes, meats, yeast. Most of the thiamine commercially available is synthetic.
Use: Medicine, nutrition, enriched flours. Isolated usually as the chloride (see formula above). Available as thiamine hydrochloride and thiamine mononitrate.

1,4-thiazane.



$CH_2SCH_2CHNHCH_2$.
Properties: Colorless liquid; pyridine-like odor. Bp 169C (758 mm Hg). Fumes in air. Absorbs carbon dioxide from the air. Soluble in alcohol, benzene, ether, water. Combustible.
Derivation: Interaction of alcoholic ammonia and dichlorodiethyl sulfide.
Grade: Technical.
Use: Organic synthesis.

thiazole.
CAS: 288-47-1.



SCH:NCH:CH.
Properties: Colorless or pale-yellow liquid; odor resembles that of pyridine. D 1.18, bp 116.8C. Soluble in alcohol and ether; slightly soluble in water.
Use: Organic synthesis of fungicides, dyes, and rubber accelerators.

IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

IN RE APPLICATION OF:	*STEVEN J. MOORE (Tel.: 203-426-4219)*	**ART UNIT:**	*2876*
APPLICATION SERIAL NO.:	*09/344,010*	**EXAMINER:**	*Kim, Ahshik (Tel.: 703-305-5203)*
FILING DATE:	*25 JUNE 1999 (earliest priority date – June 2, 1996)*	**DOCKET NO.:**	*122995-43-34.2*
TITLE:	*Method and Apparatus for Purchased Product Security*		

BRIEF

IN APPEAL OF FINAL REJECTION OF CLAIMS PENDING IN U.S. PATENT APPLICATION NO. 09/344,010

Date of Filing of Notice of Appeal: *November 13, 2003*

Date of Filing of Brief in Appeal: *(See Certif. of Mailing)*

FILED IN TRIPLICATE

CERTIFICATE OF MAILING

I hereby certify that this paper (along with any referred to as being deposited) was deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to:

MAIL STOP: APPEAL BRIEFS – PATENTS; COMMISSIONER FOR PATENTS; P.O. BOX 1450;
ALEXANDRIA, VA 22313-1450

Steven J. Moore
(Type or Print Name of Mailer)

February 13, 2004
Date of Mailing

(Signature of Mailer)

TABLE OF CONTENTS

TABLE OF AUTHORITIES CITED

Real Party In Interest

The subject application continues to be owned by Steven J. Moore, the sole inventor, of 58 Butterfield Road, Newtown, Connecticut 06470.

Related Appeals and Interferences

Applicant remains unaware of any appeal and/or interference which may directly affect or have a bearing on the board's decision in the pending appeal.

Status of Claims

On November 13, 2003 (USPTO of Notice of Appeal), appellant appealed the final rejection of all pending claims (8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 26, 27, 28, 29, 30, 31) in the above case rendered on May 13, 2003 (mailing date). All such rejected claims are on appeal.

Status of Amendments

The case before this Board comes over seven years after the applications earliest asserted priority date, June 2, 1996, and after assignment to three different Examiners -- Examiners Tremblay, Taylor and Kim. As set forth below, the file history in such case is replete with examples of the left hand clearly not appreciating what the right hand has done -- with claims originally allowed by Examiner Tremblay subsequently being rejected by Examiner Taylor, Examiner Taylor subsequently reversing his rejections of such claims, and Examiner Kim picking up the file only to repeat verbatim Examiner Taylor's by then repudiated rejections.

An amendment-after-final was submitted on September 13, 2003 with a one month extension fee after a telephonic interview was finally granted by Examiner Kim after numerous attempts to reach him were finally acknowledged (an Examiner-required "Interview Agenda" for the interview being lost in early August after multiple transmittals, and subsequent numerous attempts for scheduling the interview after yet

more transmissions of the agenda were ignored by the Examiner). An interview was sought in this case due to the long pendency of the application, nearly 7 years from the priority filing date and the fact that the Examiner Kim was new to the case. The Examiner finally contacted the Applicant regarding scheduling the telephonic interview only after the Notice of Appeal was filed on November 13, 2003 (with the USPTO requiring the Applicant to pay an additional three month extension of time -- Applicant being notified that the amendment-after-final did not stop the statutory clock). A response on the amendment-after-final filed September 13, 2003 was not mailed from the USPTO until December 16, 2003.

While the amendment-after-final made only a single amendment specifically requested by the Examiner in the Office Action of May 12, 2003, *viz.* to change the word "good" to the word "item" in Claim 8, the single amendment was not entered by the Examiner as the Examiner deemed the amendment not "to place the application in better form for appeal by materially reducing or simplifying the issues for appeal." Appendix A, comprising pages 27 – 31 of this response, sets forth the claims as pending before the board.

Summary of the Invention

For the Board's convenience the summary of the invention presented in Applicant's Appeal Brief is set forth below:

Appellant's invention comprises a computer-assisted system for automatically storing personal information on the purchaser of a product and correlating such information with a unique identifier placed on the product by any means, including an unique identifier applied in electronically-readable coded form that is decipherable by an electro-optical reader (specification, page 5, lines 12 – 14, page 15 lines 19 – 21, page 16, lines 13 - 16), and in one embodiment by directing high energy electromagnetic waves in a molten or semi-molten state (specification, page 5, line 16 – page 6, line 10). Electronic correlation of a products' purchaser is made with the unique identifier on the

product (specification, page 13, lines 5 – 6), for example at the point of retail sale, allowing for identification of the last recorded purchaser upon retrieval of the product with the unique identifier (specification, page 30, lines 1 – 3). Correlation of the unique identifier with the purchaser information may be efficiently and quickly performed by reading from the package surrounding the product an electronically-readable package identifier correlateable with the product identifier (Specification, page 21, lines 5 – 11). The electronically-readable package identifier and/or product identifier (Specification, page 9, lines 14 – 15) may include information pertaining to the manufacturer of the good (Specification, page 8, lines 19 – 21), allowing for decentralized application of unique identifiers to products.

Issues Presented for Review

The Examiner in the February 2, 1999 Office Action (Appendix B) has raised several grounds of rejection which are encompassed by the following issues:

ISSUE 1: *Whether the Examiner's assertion that U.S. Patent No. 4,822,973 to Fahner et al. "teaches a method for encoding concealed identifier on an item, the method includes directing electromagnetic laser beams for laser 10 to a molten plastic material 14 on a part, the beams forming a unique identifier (see figures 3 and 4 and col. 4, lines 24 – 29)" is incorrect and whether such reference anticipates the subject matter of claims 26 and 27.*

ISSUE 2: *Whether claims 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 19, 20, 21, 28, 29, 30, and 31 are made obvious by, and unpatentable over, U.S. Patent No. 5,434,394 to Roach et al. in view of U.S. Patent No. 5,646,365 to Collier, and with respect to claims 12 and 16 further in view of U.S. Patent No. 5,592,561 to Moore, and with respect to claims 13 and 14 further in view of U.S. Patent No. 5,623,552 to Lane.*

ISSUE 3: *Whether the Examiner abused his discretion in failing to enter the amendment-after-final which contained solely one amendment, that is amendment of claim 8 in a manner indicated by the Examiner in the final office action to be needed to overcome the Examiner's 35 U.S.C. 112, second paragraph rejection, "antecedent basis" problem, and whether such an "antecedent basis" problem exists?*

ISSUE 4: *Whether claim 18 is appropriately rejected as being of improper dependent form for failing to further limit the subject matter of a previous claim?*

Grouping of the Claims

For the reasons expounded upon below, (a) claims 26 and 27 stand or fall together; claims 8, 9, 12, 13, and 14 stand or fall together; (b) claims 15, 16, and 19 stand or fall together; (c) claims 10 and 11 stand or fall together; (d) claims 18, 29 and 30 stand or fall together; and (e) claims 20, 21, 28, and 31 stand or fall alone.

Claims 26 and 27 stand or fall together as the claim one particular type of encoding method for encoding concealed unique identifiers on products which comprise steps found by the first examiner in the prosecution to be patentable, acknowledged by the second examiner in the prosecution of the case to be patentably distinct in an interview summary after initial rejection by such second examiner, and found by the third examiner in the case to be anticipated by the same reference before the first two examiners.

Claims 8, 9, and 12 stand or fall together as each requires a product with a unique item identifier within a package having a visibly electronically-readable identifier correlateable with the unique item identifier being accepted from a purchaser in a retail setting, the unique package electronically-readable identifier being read by an electro-optical reader, and an identity card with electronically-readable personal identification information being accepted from the purchaser and such identity card being read by an electro-optical reader, so as to record the identity of the purchaser of the particular item.

Claims 13 and 14 stand or fall together in that each recites the use of a self-authenticating electronically-readable coded identity card in the method of claim 8.

Claims 15, 16, and 19 stand or fall together as they all relate to a process for encoding an item with an identifier uniquely correlateable with the item which is in

electronically-readable coded form in which the unique item identifier identifies the manufacturer of the item as well as comprises indicia specifically identifying the item and the package identifier is not only correlateable with the unique item identifier by also identifies the type of item, and the item's manufacturer.

Claims 10 and 11 stand or fall together as each relates to the method of claim 8 wherein the package identifier and personal identification information regarding the purchaser are printed on a medium, and in particular a sales receipt in electronically readable coded form.

Claims 29, 30 and 31 stand or fall together as each relates to product with an unique item identifier in electronically-readable coded form within a package having a visibly electronically-readable package identifier correlateable with the unique item identifier wherein the package identifier comprises information pertaining to the characteristics of the item.

Claims 18, 20, 21, 28 stand or fall alone. Claim 18 is independently patentable over the other claims in asserting a product with an unique item identifier in electronically-readable coded form within a package having a visibly electronically-readable package identifier correlateable with the unique item identifier. Claim 20 is independently patentable over the other claims in asserting a method of identifying a record owner of an item having a unique item identifier. Claim 21 is independently patentable over the other claims in that it asserts a processor-assisted method of recording the identity of a person purchasing a product having a unique item identifier, and packaged in a package having a package identifier correlateable with the unique item identifier, when such purchase is made over a data processing telecommunication network. Claim 28 is independently patentable over the other claims in that it asserts a process for ascertaining whether an item having an unique item identifier is the same item identified on a medium, such as a sales slip. Claim 31 is independently patentable over the other claims in that it asserts that the package identifier comprises information

pertaining to add-ons (e.g., such as accessories available for sale with the product) associated with the item within the package.

Argument

ISSUE 1: *Whether the Examiner's assertion that U.S. Patent No. 4,822,973 to Fahner et al. "teaches a method for encoding concealed identifier on an item, the method includes directing electromagnetic laser beams for laser 10 to a molten plastic material 14 on a part, the beams forming a unique identifier (see figures 3 and 4 and col. 4, lines 24 – 29)" is correct and whether such reference anticipates the subject matter of claims 26 and 27 .*

- CLAIM GROUP: 26 and 27

Claims 26 and 27 have been rejected by Examiner Kim as anticipated by U.S. Patent No. 4,822,973 to Fahner *et al.* This rejection is made despite the fact that parallel, if not identical, claims have been found allowable by the two previous Examiners. Such rejection comes on the heals of a rejection, and then reversal, by Examiner Kim of yet another claim which had previously been allowed in this case (see, claim 17 and its allowance by Examiner Tremblay).

Applicant notes that Examiner Tremblay allowed claim 2 in the office action of April 9, 1997, which present claim 26 parallels (and from which claim 27 depends), noting that "the prior art of record fails to teach or suggest the encoding of concealed identifiers while the material is still in a molten or semi-molten state," and that "while the difficulties in obtaining sufficient laser power are discussed in many of the disclosures, nothing in the prior art suggests treating an article in a molten or semi-molten state." While Examiner Taylor rejected the same claim in his only office action, dated October 4, 2002, he agreed during interview that "the existing art does not teach the embedding of the code within the material of the item, the material in a molten or semi-material, not the material equivalent to a thermoplastic." (Interview Summary of October 29, 2002 in Washington D.C.). Regardless of Examiner's Taylor turn in position, the same claim is now rejected as ANTICIPATED by Examiner Kim in his final office action

of May 13, 2003 based on a reference, Fahner *et al.*, that was specifically considered by Examiner Tremblay in March of 1997 (before allowing then claim 2) and Examiner Taylor before making his summary statement concurring in patentability in the interview summary of October 29, 2002!

Applicant has unsuccessfully attempted to explain that the term "thermoplastic" would not be equated by one of ordinary skill in the art to "molten or semi-molten material." The Examiner's suggestion on interview that Applicant modify the term "thermoplastic" with respect to such claims respectfully makes no sense as the claims do no use the term "thermoplastic," rather the Fahner reference he has cited uses the term "thermoplastic."

The simple fact is that the Examiner is factually incorrect in equating a "thermoplastic" with a "molten or semi-molten material." Thermoplastic material would be understood by those in the art as referring to the type of plastic being used, not as referencing to molten or semi-molten material! (claim 26 and 27). As demonstrated at Exhibit B hereto (page 32 of the response -- excerpts from Kirk-Othmer, *Concise Encyclopedia of Chemical Technology*, p. 400 and *Hawley's Condensed Chemical Dictionary* (2001)), one of ordinary skill in the art would understand that '[t]hermoplastic resins are polymeric structures that soften or melt at elevated temperatures, allowing them to be processed into fabricated products that, when cooled, recover the physical and chemical properties of the original resin" and that the term "[t]hermoplastic" references "[a] high polymer that softens when exposed to heat and returns to its original condition when cooled to room temperature".

As anticipation requires that every limitation asserted in a claim be contained expressly or inherently in the prior art reference, *Union Carbide Chemicals & Plastics Technology Corp. v. Shell Oil Co.*, 308 F.3d 1167, 1188, 64 U.S.P.Q.2d 1545 (Fed. Cir. 2002), Applicant respectfully asserts that there is no anticipation in this case. Support for the lack of anticipation is found in light of the prior statements by both previous Examiners, in particular the allowance by Examiner Tremblay of prior claim 2.

In sum, Applicant asserts that both claims are allowable (claim 27 being allowable for the reasons of claim 26 on which it depends).

> ***ISSUE 2:*** *Whether claims 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 19, 20, 21, 28, 29, 30, and 31 are made obvious by, and unpatentable over, U.S. Patent No. 5,434,394 to Roach et al. in view of U.S. Patent No. 5,646,365 to Collier, and with respect to claims 12 and 16 further in view of U.S. Patent No. 5,592,561 to Moore, and with respect to claims 13 and 14 further in view of U.S. Patent No. 5,623,552 to Lane.*

The Examiner asserts that claims 8 – 11, 15, 18 – 21 and 28 – 31 under 35 U.S.C. §103(a) are unpatentable over U.S. Patent No. 5,434,394 to Roach *et al.* (the "Roach reference") in view of U.S. Patent No. 5,646,365 to Collier ("the Collier reference"). Applicant respectfully traverses the Examiner's 35 U.S.C. § 103(a) rejections of claims 8 – 11, 15, 18 – 21 and 28 – 31 based in part on the failure of the Examiner to recite adequate motivation for combining the references in the manner indicated, and based in part on the inappropriate use by the Examiner of "hindsight reasoning" in an attempt to "approximate" the present invention, and lastly on the basis that many of the Examiner's assertions are simply not factually accurate in respect to the disclosures of the references.

The determination of obviousness rests on whether the claimed invention as a whole would have been obvious to a person of ordinary skill in the art at the time the invention was made. *Kahn v. General Motors Corp.*, 135 F.3d 1472, 45 U.S.P.Q.2d 1608 (Fed. Cir. 1998). In determining obviousness, four factors should be weighed: (1) the scope and content of the prior art, (2) the differences between the art and the claims at issue, (3) the level of ordinary skill in the art, and (4) whatever objective evidence may be present. *Graham v. John Deere Co.*, 383 U.S. 1 (1966); *Panduit Corp. v. Dennison Mfg. Co., 810 F.2d 1561, 1 U.S.P.Q.2d 1593* (Fed. Cir. 1987), *cert. denied*, 481 U.S. 1052 (1987). The Examiner carries the burden under Section 103 to establish a *prima facie* case of obviousness, *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988), and

must show that the reference(s) relied on teach or suggest all of the limitations of the claims. *In re Wilson*, 424 F.2d 1382, 1385 (C.C.P.A. 1970).

A *prima facie* case of obviousness requires that a motivation be provided to modify a reference. *In re Chu*, 66 F.3d 292, 36 U.S.P.Q.2d 1089 (Fed. Cir. 1995). There must be some explicit teaching or suggestion in the art to motivate one of ordinary skill to combine the references in the manner suggested. *See, Arkie Lures, Inc. v. Gene Larew Tackle, Inc.*, 119 F.3d 953, 957, 43 U.S.P.Q.2d 1294 (Fed. Cir. 1997); *Fromson v. Anitec Printing Plates, Inc.*, 132 F.3d 1437, 45 U.S.P.Q.2d 1269 (Fed. Cir. 1997); *In re Jones*, 958 F.2d 347, 21 U.S.P.Q2d 1941 (Fed. Cir. 1992). It insufficient that the prior art discloses components of a claim. *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 15 U.S.P.Q2d 1321 (Fed. Cir. 1990). When determining the differences between the prior art and the claims at issue, it is essential to view the claims at issue as "the invention as a whole." 35 U.S.C. § 103. It is legally improper to focus on the obviousness of substitutions and differences between the claimed invention and the prior art rather than on the obviousness of the claimed invention *as a whole* relative to that prior art. *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1383, 231 U.S.P.Q. 81, 93 (Fed. Cir. 1986), *cert. denied*, 480 U.S. 947 (1987).

Conclusory statements about prior art teachings, as Applicant notes below with respect to numerous statements by the Examiner, do not adequately address the factual issue of motivation to combine references. *In re Lee*, 277 F.3d 1338, 61 U.S.P.Q.2d 1430 (Fed. Cir. 2002). The factual inquiry whether to combine references "must be thorough and searching," *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351 – 1352, 60 U.S.P.Q.2d 1001, 1008 (Fed. Cir. 2001), and cannot 'be resolved on subjective belief and unknown authority (*In re Lee*, 277 F.3d 1338, 1343-44, 61 U.S.P.Q.2d 1430, 1434 (Fed. Cir. 2002). The mere fact "that the prior art may be modified in [a] manner suggested by [an] Examiner does not make the modification obvious unless the prior art suggest[s] the desirability of the modification." *In re Fritch*, 972 F.2d 1260, 1266, 23 U.S.P.Q.2d 1780, 1784 (Fed. Cir. 1992).

Applicant respectfully asserts that the Examiner is using impermissible hindsight in "[d]efining the problem in terms of its solution ... in the selection of the prior art relevant to obviousness." *Monarch Knitting Machinery Corp. v. Fukuhara Industrial & Trading Co., Ltd.*, 139 F.3d 977, 45 U.S.P.Q.2d 1977 (Fed. Cir. 1998).

- CLAIM GROUP: 8, 9, and 12

The Examiner asserts that U.S. Patent No. 5,434,394 to Roach *et al.* teaches "a computer assisted method of recording the identity of a purchaser at a retail setting" and describes "a card reader in the terminal" reading an "optically encoded identity card" in "tandem with the bar code on [a] good" selected by a customer. The Examiner acknowledges that the Roach reference does not disclose "that the good is enclosed within a package, the package having a bar code, which is correlateable with the good's bar code." Attempting to find such a teaching in the prior art, the Examiner cites to U.S. Patent No. 5,646,35 to Collier which he states "teaches the purchasing of gun bullets, the bullets having a bar-coded good identifier therein under an outer surface of the bullet .. [with the] good identifier reflect[ing] the type of bullet, the lot and the manufacturer of the bullet." The Examiner further asserts that "[t]he bar code on the package would correlate with the bar code on the bullet."

Applicant first notes that U.S. Patent No. 5,434,394 to Claims 8, 9, 12, 13 and 14 specify that each item have a "unique item identifier" something lacking, as more fully explained below, in both the Roach and Collier references. The "unique item identifier" of the present invention permits a particular item to be associated with its purchaser (See, *e.g.*, Fig. 6 wherein a particular star is able to be matched up with the purchaser who lost it). Further, the unique item identifier associated with the item identifies the manufacturer of the item. The later permits different manufacturers to use their own identification scheme without the need for some sort of national consensus and some "national computer database," as the Examiner asserts the Collier reference teaches (See, page 5, line 3, of the Final Office Action: "These information would be held within a national computer database") (*n.b.*, in this sense the Collier reference actually teaches

away from the present invention -- "teaching away" from the art is a *per se* demonstration of lack of *prima facie* obviousness. *In re Dow Chemical Co.,* 837 F.2d 469, 5. U.S.P.Q.2d 1529 (Fed. Cir. 1988); *In re Neilson*, 816 F.2d 1567, 2 U.S.P.Q.2d 1525 (Fed. Cir. 1987)). Further, the claims require that the package identifier correlate with the unique item identifier(s) of the items enclosed in the package, something not possible as indicated above neither reference teaches or suggests a "unique item identifier." The actual particular item to be purchased is provided by the purchaser at the point of sale along with a identity card housing electronically-readable personal identification information, and such information is stored along with "information pertaining to the manufacturer of the item," again in order to allow for unique identification of items without the need for manufacturers to form some sort of national consensus about identification schemes and use of identifiers. Respectfully, the Examiner's combination of references, even if a motivation existed for combining the same (which Applicant asserts the Examiner has failed to provide), do not teach, disclose or suggest the subject matter of such claims as they lack these fundamental elements.

Applicant respectfully asserts that the Examiner reads teachings into the Roach *et al.* and Collier references that simply do not exist there. Applicant's repeated requests (see, *e.g.,* the Response to the Office Action of May 12, 2003) that the Examiner specifically indicate where in the references such purported teachings are made have been unanswered.

The Examiner asserts that the Roach reference teaches a method of recording the identity of a purchaser at a retail setting, and implies that such recordation is made with respect to the actual item purchased. This simply is not so. The unique membership card that identifies the customer is used only to associate the customer with the type of good that the customer wishes to buy, not the item itself (see, *e.g.,* col. 2, lines 3 -6: "the sale transaction computers read a unique membership card which identifies the customer, and universal product code label which identifies the merchandise to be purchased). The terminal does not read a code on the good actually purchased, rather

"[o]nce the merchandise is selected at the point of decision, the point of sale system sends information to the warehouse facility to enable the merchandise to be picked from the warehouse and sent to the delivery location, thereby minimizing the wait time required for the customer to take possession of the merchandise" (col. 2, lines 14 – 21). That is, for example, a particular toaster is not associated with the person purchasing the item, rather only the type of toaster is associated with the person. Further, the item is not provided by the purchaser as indicated in claims 8, 9 and 12 ("accepting from a purchaser at a point of retail sale an item encoded with a unique item identifier"), rather the item is selected by a warehouse facility employee based on solely the UPC code.

In respect of the Collier reference the Applicant cannot find any support in the Collier reference for the Examiner's assertion that the identifier associated with the bullets of Collier "reflect[ ] the type of bullet, the lot, and manufacturer of the bullet." Again Applicants repeated requests that the Examiner provide support in the reference for such characterization have been ignored, suggesting such statement is nothing more than hindsight reasoning. Further, the Examiner is incorrect in his assertion that that the Collier reference teaches an unique item identifier, rather the reference clearly teaches at col. 3, lines 52 – 53: "All the bullets included in the packaging have the same identification number or code".

Respectfully, Applicant asserts that the Examiner reads into the "automated order and delivery system" of U.S. Patent No. 5,434,394 to Roach, and the identification-tag containing bullets of U.S. Patent No. 5,646,365 to Collier, teachings that are found in neither reference, including a unique item identifier on each item, a inputting at a point of sale by an electro-optical reader through scanning of a package identifier of information pertaining to the unique item identifier, and information pertaining to the manufacturer of the item, and correlation of the purchaser with the particular item proffered by the purchaser at the point of retail sale. The Examiner provides no motivation for one of ordinary skill in the art to provide these missing elements based on the references of record, and as Applicant asserts that such missing

elements would be unobvious to one of ordinary skill in the art at the time of the invention, Applicant respectfully requests that the rejection of claims 8, 9, and 12 be reversed.

In regard to the citation of U.S. Patent No. 5,592,561 to Moore for the teaching that a code may "not [be] observable under visible light and can be readable under non-visible light," in respect of claim 12, Applicant does not maintain that the invisible coding of the item is (but asserts that claim 12 is patentable for the reasons set forth above) the basis of patentability of for such claim, or that invisible coding is unknown in the art.

- CLAIM GROUP: 13 and 14

Claims 13 and 14 stand or fall together in that each recites the use of a self-authenticating electronically-readable coded identity card in the method of claim 8.

The Examiner asserts that claims 13 and 14 are unpatentable under 35 U.S.C. § 103 (a) over U.S. Patent No. 5,434,394 to Roach *et al.* as modified by U.S. Patent No. 5,646,635 to Collier, and further in view of U.S. Patent No. ,5623,552 to Lane. The Examiner asserts that "Lane teaches a smart card, that can be used at a plurality of locations, the card containing a microprocessor and means for self authentication and identification of the card holder" and that "[i]t would have been obvious to one of ordinary skill in the art to provide such a card, as the smart card processor allows more data to be stored within the memory of the card and the authentication means allows the cardholder to verify identity without extensive assistance from a retail terminal and/or the terminal's operator ... [w]hen purchasing goods at a retail terminal, as customer would enjoy the ability to identify his or herself in an expeditious manner, as the self-authenticating card would provide" (page 6, lines 6 – 15, of the Final Office Action).

Applicant asserts that claims 13 and 14 are patentable for at least the reasons set forth above in regard to clam 8 from which the depend. Applicant further

argues that the Lane reference in combination with the Collier and Roach references provides no motivation for using a self-authenticating electronically-readable coded identity card for the purpose of recording identity information pertaining to a purchaser to the actual item purchased.

The Examiner provides no motivation for the use of a self-authenticating identity card in the method of claim 8 other than that a purchaser might be prone to use such a card to store information thereon or expeditiously identify the purchaser to the seller. Applicant asserts that such motivation is inadequate under the law. Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination," *Carella v. Starlight Archery and Pro Line Co.*, 804 F.2d 135, 140, 231 U.S.P.Q. 644, 647 (Fed. Cir. 1986) (emphasis added), and such combination "must be based on objective evidence of record" (*In re Lee*, 227 F.3d 1338, 1343-44, 61 U.S.P.Q.2d 1430, 1434 (Fed. Cir. 2002). A *prima facie* case of obviousness requires that a motivation be provided to modify a reference in the manner suggested by the Examiner. *In re Chu,* 66 F.3d 292, 36 U.S.P.Q.2d 1089 (Fed. Cir. 1995). A mere statement that the modification is "well within the ordinary skill in the art at the time the claimed invention was made" is not sufficient to establish a *prima facie* case of obviousness. *Ex parte Levengood*, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993).

The usefulness of the self-authenticating card is not obvious (as shown by the Examiner's own misunderstandings in respect of the usefulness of the card). The self-authenticating card of the present invention greatly reduces the possibility that one can fabricate that they purchased an identifiable item at one or another time.

Applicant therefore respectfully urges that the Examiner's assertion in regard to these claims is hindsight reasoning, and thus that the claims are patentable.

- CLAIM GROUP: 15, 16, and 19

Claims 15, 16, and 19 relate to a process for encoding an item with an unique item identifier which is in electronically-readable coded form, the unique item identifier identifying the manufacturer of the item as well as comprising indicia specifically identifying the item, and incorporating the same into a package having a package identifier that is not only correlateable with the unique item identifier by also identifies the type of item, and the item's manufacturer.

Applicant can find no support for the Examiner's assertion that the Collier reference teaches the identifier on the bullet may be in electronically-readable coded form, that is his indication that the "Collier teaches the purchasing of gun bullets, the bullets having a bar-coded good identifier therein under an outer surface of the bullet "(See, page 4, lines 22 – 23, of the Final Office Action). Applicant respectfully asserts the Examiner's repeated refusal to point out support for such statement in the reference confirms the same (see, e.g., Applicant's request at page 14, line 6 – 7, of the Response to Office Action May 13, 2003). The Collier reference teaches a "tag" not any identifier, and in particular a tag having an identification number or code "imprinted" (col. 3, lines 20 – 22) on a material which can withstand high heat: "an identification tag [] imprinted with an identification number or code" (col. 3, lines 20 – 22), and is of "thermal resistant material" (col. 4, line 4) which can "withstand the temperature of [ ] molten lead" (col. 3, line 16. While the reference refers to a bar code on the exterior of the package, Applicant does not find a reference to a bar code on the identification tag anywhere in the reference such as stated by the Examiner. Instead the reference indicates the indicia on the tags associated with the bullets are other than a bar code "[t]he number or code on the identification tag is then read and input into the computer" (col. 4, lines 5 – 9), the identifier on the tag must remain readable after heating of the bullet (col. 4, lines 1 – 2), and in that the reference states that "the identification tag is retrieved from the spent bullet ... [and] the retrieved identification tag [ ] matched with the identification tag code

in the catalog" (col. 1, lines 63 – 67). While not directly pertinent to the claims at hand, the Applicant further notes that the Examiner is incorrect that Collier teaches that the item identifier is "under a surface of the bullet," but rather the reference actually states that the identifier "must be small enough to fit within the jacket of the bullet" (col. 3, lines 32 – 33) (see also, col. 3, line 46, of the Collier reference wherein it states the identification tag "is inserted into the bullet jacket," and col. 1, lines 54 -55 which states the identification is "in the lead core.").

The Roach reference on the other hand neither teaches, discloses, or suggests anything in regard to the item itself having identification information associated therewith, nor information pertaining to the manufacturer of the item, but rather only indicates that a UPC code associated with an item, which generally describes a class of goods, can be matched upon request by a purchaser for a particular UPC-labelled good.

As neither reference supplies this missing element as well, it is asserted that these claims are patentable both for the reasons set forth in regard to Claim Group 8, 9, 12, 13, and 14, in particular with respect to the package identifier, as well as for reciting the unobvious element of having the item associated with an unique item identifier in electronically-readable coded form.

In regard to the Examiner's citation of U.S. Patent No. 5,592,561 to Moore for the teaching that a code may "not [be] observable under visible light and can be readable under non-visible light," in respect of claim 16, Applicant does not maintain that the invisible coding of the item makes the claim patentable in itself (but asserts that claim 16 is patentable for the reasons set forth above), nor does Applicant assert that invisible coding was not known at the time of the invention.

- CLAIM GROUP: 10 and 11

Claims 10 and 11 relate to the method of claim 8 wherein the package identifier and personal identification information regarding the purchaser are printed on a medium, and in particular a sales receipt in electronically readable coded form.

The Examiner asserts that such is disclosed by Roach in that "[a] sales receipt can be printed out by the terminal to reflect the purchase. In addition, the customer may also wish for the good to be delivered to his/her address." Respectfully, Applicant fails how such statements, even if found in the Roach reference, support a finding that taken together disclose printing the package identifier and personal identification information on a medium such as a sales receipt. Further, once more, the Examiner provides no specific support in the reference for such statements, and Applicant is unable to find support for such statement in the Roach reference.

As indicated in specification, among other places, at page 26, recording of such information on medium such as a bill of sale, receipt, etc., permits owner-product information to be updated from the medium itself. Such simply is not disclosed, taught, or suggested in any manner by either the Roach or Collier reference, and the Examiner's unsupported statements with respect thereto are a non-sequitor. For such reasons, Applicant asserts that claims 10 and 11 are patentable for the reasons set forth in regard to claim 8 above, as well as their recitation of the recordation of a package identifier and personal identification information regarding the purchaser of claim 8 on a medium, such as a sales receipt, in electronically readable coded form.

- CLAIM GROUP: 29, 30 and 31

Claims 29, 30 and 31 relate to product with an unique item identifier in electronically-readable coded form within a package having a visibly electronically-readable package identifier correlateable with the unique item identifier wherein the

package identifier comprises information pertaining to the characteristics of the item. The product is produced by the process of claim 15.

The Examiner asserts with respect to claims 29 and 30 that "[a]s shown in figure 4a [of the Collier reference], product data can include dimensional information, which is a characteristic of the product" (page 5, line 10 – 11, of the Final Office Action). In respect of claim 31, the Examiner asserts that "in the embodiment disclosed in Roach, a product such as component parts of PC (i.e., monitors, speakers, headphones or other component parts or peripherals of a product) or other electronic goods can certainly be considered as add-on items" (page 4, lines 16 – 18, of the Final Office Action). The Examiner fails, however, to explain even if such disclosures are made in the references how such disclosures teach or suggest the subject matter of claims 29, 30 and 31 wherein the package identifier of a package enclosing an item with an unique item identifier in electronically-readable coded form includes such item characteristic, dimensional or add-in information. The reason for this is clear, that is because the references do not teach, disclose, or suggest such package identifier.

Respectfully, as the Examiner has failed to meet his burden of making a *prima facie* case of obviousness in respect of claim 29, 30 and 31, the rejection with respect to these claims should be overturned.

- CLAIM GROUP: 18

Claims 18 stands or falls alone. Claim 18 is independently patentable over the other claims in asserting a product with an unique item identifier in electronically-readable coded form within a package having a visibly electronically-readable package identifier correlateable with the unique item identifier.

In regard to claim 18, as set forth above in regard to claim 15, Applicant fundamentally disagrees with the Examiner that the combination of references suggests a product (or a process for making the product) having a unique item identifier (as

discussed above, none of the references teach uniquely identified items) in electronically-readable coded form wherein the unique item identifier identifies the manufacturer of said item. Further, the combination of references do not suggest the packaging such item in a package having a package identifier in visible electronically-readable coded form which is correlateable with the unique item identifier, the package identifier also identifying the manufacturer. As such, Applicant urges the patentability of claim 18.

- CLAIM GROUP: 20

Applicant asserts that Claim 20 is independently patentable over the other claims in asserting a method of identifying a record owner of an item having a unique item identifier. Applicant notes no argument by the Examiner specifically indicating that the method of identifying the purchaser of a particular item as set forth in claim 20, is taught, disclosed, or suggested by any combination of references. Nor does the Examiner cite any of references as teaching, disclosing or suggesting that a process for identifying a purchaser of a particular item. Therefore, Applicant urges the patentability of such claim.

- CLAIM GROUP: 21

Applicant asserts that claim 21 is independently patentable over the other claims in that it asserts a processor-assisted method of recording the identity of a person purchasing a item having a unique item identifier, and packaged in a package having a package identifier correlateable with the unique item identifier, when such purchase is made over a data processing telecommunication network.

In support of his rejection, the Examiner indicates that U.S. Patent No. 5,434,394 to Roach *et al.* discloses "[a] telecommunications network ring 34 [that] provides a means of digitally sending information relating to the good, purchaser, and delivery instructions to and form a headquarters network 8 or to a warehouse 40."

Again, Applicant notes that the references do not teach, disclose or suggest an item having a unique item identifier thereon or a package identifier in electronically-

readable coded form correlated with such unique item identifier and comprising information identifying the manufacturer of said item. Further there is no indication in any of the references that a unique item identifier is associated with a person who desires a good after receiving information that the good is physically available and the unique item identifier of the good that is ultimately to be shipped has been selected. Respectfully, such is not shown or implied by the references of record, and Applicant is not, as apparently thought by the Examiner, trying to claim novelty in a telecommunication network ring receiving information pertaining to a good, a purchaser, and delivery instructions with respect to the goods. Thus Applicant asserts that claim is patentable.

- CLAIM GROUP: 28

Applicant asserts that claim 28 stands or fall alone, in that it asserts a process for ascertaining whether an item having an unique item identifier is the same item identified on a medium, such as a sales slip. Applicant repeats his arguments in respect of claim group 10 and 11 with respect to the patentability of claim 28. As the Examiner has failed to demonstrate that any of the references of record, alone or in combination, show the process of comparing an unique item identifier on a item with electronically-readable coded form information on a medium, Applicant asserts that this claim is independently patentable as well.

ISSUE 3: *Whether the Examiner abused his discretion in failing to enter the amendment-after-final which contained solely one amendment, that is amendment of claim 8 in a manner indicated by the Examiner in the final office action to be needed to overcome the Examiner's 35 U.S.C. 112, second paragraph rejection, "antecedent basis" problem, and whether such an "antecedent basis" problem exists?*

- CLAIM GROUP: 8

As stated at M.P.E.P. 714.13, the refusal to enter a proposed amendment should not be arbitrary. Any proposed amendment should be given sufficient consideration to determine whether issues on appeal are simplified.

Claim 8 was rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner asserts that the limitation "said good" in line 9 of the claim does not have sufficient antecedent basis, and suggested that the word "good" be changed to "item."

Adopting the Examiner's suggestion, Applicant amended claim 8 to replace "good" with "item." While the later was the only amendment made to the claims, the Examiner in the Office Action of December 16, 2003, rejected this amendment-after-final based on an assertion that the amendment was "not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal."

Applicant respectfully asserts that the Examiner's failure to amend the claims specifically in a manner suggested by him was an abuse of the Examiner's discretion.

ISSUE 4: *Whether claim 18 is appropriately rejected as being of improper dependent form for failing to further limit the subject matter of a previous claim?*

- CLAIM GROUP: 18

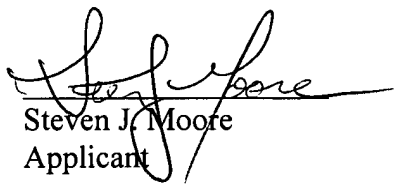
In the Examiner Final Office Action, claim 18 was objected to under 37 C.F.R. § 1.75(c) as being improper dependent form for failing to further limit the subject matter of a previous claim. The Examiner asserts that there is no product defined in claim 15, and that therefore claim 18 does not further limit the subject matter of a previous claim.

Applicant respectfully disagrees with the Examiner. A product-by-process claim, which is a product claim that defines the claimed product in terms of the process by which it is made, is proper. *In re Luck*, 476 F.2d 650, 117 U.S.P.Q. 523 (C.C.P.A. 1973); *In re Pilington*, 411 F.2d 1345, 162 U.S.P.Q. 145 (C.C.P.A. 1969); *In re Steppan*, 394 F.2d 1013, 156 U.S.P.Q. 143 (C.C.P.A. 1967). As stated in M.P.E.P. § 2173.05(p) "[a] claim to a device, apparatus, manufacture, or composition of matter may contain a reference to the process in which it is intended to be used without being objectable under 35 U.S.C. § 112, second paragraph, so long as it is clear the claim is direct to the product and not the process." Therefore, Applicant respectfully urges the Board to overturn the Examiner's objection to the claim.

Summary

For all of the foregoing reasons, it is submitted that the Examiner's rejections of claims 8 – 16, 17, 18 – 21 and 26 - 31 were erroneous, and reversal of the Examiner's decisions is respectfully requested.

Respectfully submitted,



Steven J. Moore
Applicant

APPENDIX A

APPENDIX OF CLAIMS AS PENDING

1. **(CANCELED)**

2. **(CANCELED)**

3. **(CANCELED)**

4. **(CANCELED)**

5. **(CANCELED)**

6. **(CANCELED)** .

7. **(CANCELED)**

8. **(PREVIOUSLY PRESENTED)** A computer-assisted method of recording an identity of a purchaser of a particular item in a retail setting comprising:

accepting from a purchaser at a point of retail sale an item encoded with a unique item identifier, said item identifier identifying the manufacturer of said item and comprising indicia specific to said item, said item being enclosed in a package having a visible electronically-readable coded form package identifier correlateable with said indicia specific to said item;

accepting from said purchaser of said good at a point of retail sale an identity card housing electronically-readable personal identification information;

inputting at the point of sale by an electro-optical reader said personal identification information from said identity card into electronic storage;

inputting at the point of sale by an electro-optical reader into said electronic storage said visible electronically-readable coded form package identifier and information pertaining to the manufacturer of said item;

correlating said personal identification information with said package identifier and information pertaining to the manufacturer of said item in a computer database.

9. **(PREVIOUSLY PRESENTED)** The method of claim 8 further comprising the step of transferring said correlated data to a shared database with other retailers.

10. **(PREVIOUSLY PRESENTED)** The method of claim 8 further comprising the step of: providing at least a portion of said unique item identifier to the purchaser in electronically readable coded form on a medium .

11. **(PREVIOUSLY PRESENTED)** The method of claim 10 further comprising the step of: printing said package identifier and said personal identification information on a sales receipt in electronically readable coded form.

12. **(PREVIOUSLY PRESENTED)** The method of claim 8 wherein the item identifier is invisible in visible light.

13. **(PREVIOUSLY PRESENTED)** The method of claim 8 wherein the identity card is a self-authenticating electronically-readable coded identity card.

14. **(PREVIOUSLY PRESENTED)** The method of claim 8 wherein the identity card is a microcircuit technology card.

15. **(PREVIOUSLY PRESENTED)** A process for encoding an item with an identifier uniquely correlateable with said item:

coding an item with an unique item identifier in electronically-readable coded form, said unique item identifier identifying the manufacturer of said item and comprising indicia specifically identifying said item;

on said item or the packaging of said item, placing a package identifier, in visible electronically-readable coded form, which is correlateable with said unique item identifier, said package identifier identifying the type of item, the item's manufacturer, as well as identifying said indicia on said item.

16. **(PREVIOUSLY PRESENTED)** The process of claim 15 wherein the unique item identifier associated with the item is invisible.

17. **(PREVIOUSLY PRESENTED)** The process of claim 15 wherein the unique item identifier's position on said item is associated with the lot in which said item was manufactured.

18. **(PREVIOUSLY PRESENTED)** The product of the process of claim 15.

19. **(PREVIOUSLY PRESENTED)** The method of claim 15 wherein said visible electronically-readable package identifier which is placed on said item or the packaging of said item further identifies origin of manufacture.

20. **(PREVIOUSLY PRESENTED)** A computer-assisted method of identifying a record owner of the item, or part thereof, of claim 18 comprising:

obtaining the item;

determining the unique item identifier encoded on said item;

inputting said unique item identifier into a data processor operatively connected with a data base housing purchaser identity information correlated to unique item identifiers found on a plurality of items;

retrieving purchaser identity information correlated with said unique item identifier in said data base;

determining the identity of the purchaser(s) of said item from said purchaser identity information.

21. **(PREVIOUSLY PRESENTED)** A processor-assisted method of recording the identity of a purchaser of an item, having an unique item identifier thereon containing indicia specifically identifying the particular item, purchased through a data processing telecommunications network comprising:

receiving over a data processing telecommunications network a digital data signal comprising digital information relating to the order of a good, the identity of the orderer of the good, and the address to which the orderer of the good desires the

good to be transmitted, said digital data signal being transmitted from said orderer to a purveyor of said good;

transmitting from said purveyor, in response to said offerer's order, a digital data signal comprising a request for said good to a processor located at a site at which such good is physically available in a package said package having a package identifier in electronically-readable coded form correlateable with an unique item identifier said unique item identifier associated with the particular item comprising the packaged good, and comprising information identifying the manufacturer of said item and indicia specifically identifying said item;

receiving a digital data signal from form the site at which such good is physically available comprising digital information with respect to the package identifier; and

correlating in a database said package identifier digital information with said digital information pertaining to the identity of the offerer and the address to which the offerer desires the good to be transmitted.

22. **(CANCELED)**

23. **(CANCELED)**

24. **(CANCELED)**

25. **(CANCELED)**

26. **(PREVIOUSLY PRESENTED)** A method for encoding concealed unique identifiers on products comprising:

directing one or more high energy electromagnetic waves at a material in a molten or semi-molten state such that the wave(s) substantially converge at a point within the material;

altering the convergence point of said high energy electromagnetic wave(s) such that the three-dimensional structure of the molten or semi-molten material is disrupted such that an unique identifier is formed;

using the solidified material in the construct of a product.

27. **(PREVIOUSLY PRESENTED)** The method of claim 26 wherein the molten or semi-molten material is a plastic.

28. **(PREVIOUSLY PRESENTED)** A process for ascertaining whether an item having a unique item identifier in electrically-readable coded form, said unique item identifier identifying the manufacturer of said item and comprising indicia specific to said item, is the same item that is identified by information in electronically-readable coded form on a medium, said process comprising the steps of:

a) comparing said unique item identifier on said item with the electronically-readable coded form information on said medium;

b) determining that said item having said unique item identifier is the same as said item identified on said medium if the unique item identifier favorably compares with the electronically-readable coded form information of step a.

29. **(PREVIOUSLY PRESENTED)** The product of claim 18 wherein said package identifier further comprises information pertaining to characteristics of the item.

30. **(PREVIOUSLY PRESENTED)** The product of claim 29 wherein said package identifier comprises information pertaining to the dimensions or features of the item.

31. **(PREVIOUSLY PRESENTED)** The product of claim 29 wherein said package identifier comprises information pertaining to add-ons associated with the item.

APPENDIX B

(see attachments on definition of "thermoplastic")

KIRK-OTHMER

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All types of SBR use compounding recipes, as do other unsaturated hydrocarbon polymers that share the common ingredients of sulfur, accelerators, antioxidants, antiozonants, activators, fillers, and softeners or extenders. SBR requires less sulfur than natural rubber for curing. The usual range is 1.5–2.0 phr of sulfur; however, this range should be based on the rubber hydrocarbon only for oil-extended SBR. Because of their lower unsaturation, all styrene–butadiene rubbers are slower curing than natural rubber and require more acceleration. Processing SBR compounds is similar to that of natural and polybutadiene rubbers. The ingredients are mixed in internal mixers or on mills and may be extruded, calendered, molded and cured in conventional equipment.

Uses

About 65% of all SBR elastomer produced in the United States is used in the manufacture of passenger-car tires. Two expanding markets for SBR are adhesives (qv) and chewing gum. A wide variety of SBRs is available for adhesive applications, and several of the crumb forms were designed specifically for the adhesives industry.

The block styrenic copolymers are intended for applications in adhesives, caulks, sealants, coatings, food packaging, toys, tubing, sheeting, molding equipment, belting, shoe soles and heels, and miscellaneous uses.

R.G. BAUER
The Goodyear Tire & Rubber Company

S.S. Medvedev, *International Symposium on Macromolecular Chemistry*, Pergamon Press, New York, 1959, pp. 174–190.

THERMOPLASTIC ELASTOMERS

Thermoplastic resins are polymeric structures that soften or melt at elevated temperatures, allowing them to be processed into fabricated products that, when cooled, recover the physical and chemical properties of the original resin. Of the three classes of thermoplastic elastomers to be discussed, the styrene–diene block copolymers are the largest volume (> 50,000 metric tons), the thermoplastic polyurethanes are next (> 15,000 t), and copolyester ethers, the newest entry, are now > 2000 t.

Styrene–Diene Thermoplastic Block Copolymers

Preparation of styrene–diene block copolymers is achieved by forming a living polymer, a term coined to describe the product of a polymerization that has no termination or chain-transfer reactions. Shown in Table 1 is a comparison of mechanical properties of SBS block copolymers with vulcanized SBR and natural rubber illustrating the range inherent in the thermoplastic elastomers.

The chemical characteristics of the copolymers are determined by the nature of the components. Alteration of the chemical characteristics is achieved by altering one or more of the blocks.

The styrene–diene thermoplastic elastomers have excellent resistance to water, acids, and bases. Resistance to hydrocarbons, solvents, and oils is poor. The thermoplastic nature limits their utility to temperatures below 65°C depending on the stress. Elastic recovery, compression set, and creep properties are usually inferior to the chemically cross-linked elastomers.

Table 1. Typical Properties of ABA Thermoplastic Elastomers and Conventional Rubbers

	Kraton 1101[a]	Kraton 1107[b]	Natural rubber	SBR rubber
styrene, %	30	14		
tensile strength, MPa[c]	31.8	21.4	20.8	14.5
modulus at 300% ext, MPa[c]	2.8	0.7	3.5	2.1
elongation at break, %	880	1300	600	800
hardness, Shore A	71	37	55	45
specific gravity	0.94	0.92		

[a] SBS (styrene–butadiene–styrene).
[b] SIS (styrene–isoprene–styrene).
[c] To convert MPa to psi, multiply by 145.

Table 2. Typical Properties of Segmented Polyether Esters

4GT hard segment, %	33	58	
polymer melt temperature (by dsc[a]), °C	176	202	212
specific gravity	1.15	1.20	
tensile strength, MPa (psi)	39.3 (5700)	44.1 (6400	
elongation at break, %	810	760	510
flexural modulus, MPa (psi)	44.8 (6500)	206 (30,000)	
oil swell (ASTM NO. 3 oil, 7 days at 100°C), % vol increase	22.0	12.2	

[a] Differential scanning calorimetry.

The SBS elastomers may be processed by a wide variety of techni including solution processing, extrusion, calendering, injection mol blow molding, and vacuum forming. Standard rubber and plastics e ment is useful for processing the elastomers.

Uses for the thermoplastic elastomers fall into two main sect primary raw materials for rubber products without vulcanization, modifiers to upgrade the qualities of the rubbers and plastics. T largest markets for the styrene–diene block copolymers are footw adhesives (qv), and mechanical goods.

Thermoplastic Urethane Elastomers

Thermoplastic polyurethane (TPU) elastomers are a special class urethanes that can be processed as plastics and as cements for a wi range of applications (see Urethane polymers). Generally, polyester-bas materials are selected for high strength, tear, chemical and heat res tance, and polyether-based materials are selected for low temperatur flexibility, high humidity conditions, and resistance to attack by fun and bacteria.

Since urethane elastoplastics incorporate exceptional resistance abrasion, fuel and oils, and have high tensile, tear- and load-bearin properties, and are available in a broad durometer range, they a candidates for demanding applications in such areas as automotiv sporting, general mechanical goods, fabric coatings, and biomedical ap plications such as intra-aortic balloons (see Prosthetic and biomedica devices).

Thermoplastic Copolyester–Ether Elastomers

Segmented copolyester–ethers represent a novel family of commercial thermoplastic elastomers derived from terephthalic acid (T), polytetramethylene ether glycol (PTMEG), and 1,4-butanediol. They offer an unusual combination of easy processing and high performance under environmental extremes (see Polyesters; Polyethers). The polyester–ether copolymers are prepared by titanate ester (tetrabutyl titanate)-catalyzed melt transesterification of a mixture of dimethyl terephthalate, polyether glycol, and excess 1,4-butanediol. Some typical physical properties are listed in Table 2.

The thermoplastic copolyester–ether elastomers commercialized as Hytrel by DuPont can be processed by injection, blow, compression, transfer, or rotational molding. Some of the many uses of these elastomers include as a replacement for cured rubber and rubber-metal parts with a one-component elastomer unit.

A.F. FINELLI
R.A. MARSHALL
D.A. CHUNG
The Goodyear Tire and Rubber Co.

A. Noshay and J.E. McGrath, *Block Copolymers: Overview and Critical Survey*, Academic Press, Inc., New York, 1976.

U.S. Pat. 3,265,766 (Aug. 9, 1965), G. Holden and R. Milkovich (to Shell Oil Co.).

U.S. Pat. 2,871,218 (Jan. 27, 1959), C.S. Schollenberger (to B.F. Goodrich Co.).

U.S. Pat. 3,651,014 (Mar. 21, 1972), W.K. Witsiepe (to E.I. du Pont de Nemours and Co., Inc.).

Hawley's

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in household thermometers. Mercury thermometers ranging up to 600C are available; the mercury is prevented from vaporizing by a pressurized inert gas inserted above the mercury column. Metal protection tubes for stem and bulb are necessary. The softening point of the glass is of primary importance; borosilicate glasses are satisfactory up to 500C, but Jena glass is required for higher temperatures. Minimum and maximum thermometers are so made as to retain their lowest and highest readings indefinitely; the latter are used for oil-well and other geothermal measurements.

There are several other types of thermometers: (1) Gas in which either the pressure at constant volume or the volume at constant pressure measure the temperature; these are used for extremely accurate thermodynamic determinations. The gases used are helium, nitrogen, and hydrogen. (2) Bimetallic, in which the sensing element consists of two strips of metals having different expansion coefficients; its range is from −185 to 425C. (3) Thermoelectric (thermocouple), in which measurement is made by the electromotive force generated by two dissimilar metals; its range is from −200 to 1800C. (4) Resistance, in which temperature is measured by change in the electrical resistance of a metal, usually platinum; its range is from −163 to 660C. (5) An optical fiber thermometer developed by NBS Center for Chemical Engineering has a range of up to 2000C. It is made from a single crystalline sapphire and is much more accurate than the existing standard. Based on fundamental radiation principles, it measures thermodynamic temperatures directly. See thermocouple; bimetal.

thermonuclear reaction. See fusion.

thermoplastic. A high polymer that softens when exposed to heat and returns to its original condition when cooled to room temperature. Natural substances that exhibit this behavior are crude rubber and a number of waxes; however, the term is usually applied to synthetics such as polyvinyl chloride, nylons, fluorocarbons, linear polyethylene, polyurethane prepolymer, polystyrene, polypropylene, and cellulosic and acrylic resins.
See thermoset.

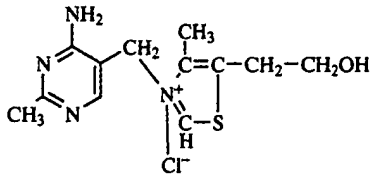
thermoset. A high polymer that solidifies or "sets" irreversibly when heated. This property is usually associated with a cross-linking reaction of the molecular constituents induced by heat or radiation, as with proteins, and in the baking of doughs. In many cases, it is necessary to add "curing" agents such as organic peroxides or (in the case of rubber) sulfur. For example, linear polyethylene can be cross-linked to a thermosetting material by either radiation or chemical reaction. Phenolics, alkyds, amino resins, polyesters, epoxides, and silicones are usually considered to be thermosetting, but the term also applies to materials in which additive-induced cross-linking is possible, e.g., natural rubber.

THF. Abbreviation for tetrahydrofuran.

thia-. Prefix indicating the presence of sulfur in a heterocyclic ring.

thiabendazole. (4-[2-benzimidazolyl]thiazole).
CAS: 148-79-8. $C_{10}H_7N_3S$.
Properties: White to tan crystals. Mp 304C. Slightly soluble in water, alcohols, and chlorinated hydrocarbons; soluble in dimethylformamide.
Use: Fungicide effective on citrus fruits, anthelmintic.

thiamine. (3-(4-amino-2-methylpyrimidyl-5-methyl)-4-methyl-5, β-hydroxy-ethylthiazolium chloride; vitamin B_1). $C_{12}H_{17}ClN_4OS$. The antineuritic vitamin, essential for growth and the prevention of beriberi. It functions in intermediate carbohydrate metabolism in coenzyme form in the decarboxylation of α-keto acids. Deficiency symptoms: emotional hypersensitivity, loss of appetite, susceptibility to fatigue, muscular weakness, and polyneuritis.

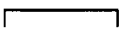


Source: Enriched and whole-grain cereals, milk, legumes, meats, yeast. Most of the thiamine commercially available is synthetic.
Use: Medicine, nutrition, enriched flours. Isolated usually as the chloride (see formula above). Available as thiamine hydrochloride and thiamine mononitrate.

1,4-thiazane.

$CH_2SCH_2CHNHCH_2$.
Properties: Colorless liquid; pyridine-like odor. Bp 169C (758 mm Hg). Fumes in air. Absorbs carbon dioxide from the air. Soluble in alcohol, benzene, ether, water. Combustible.
Derivation: Interaction of alcoholic ammonia and dichlorodiethyl sulfide.
Grade: Technical.
Use: Organic synthesis.

thiazole.
CAS: 288-47-1.



SCH:NCH:CH.
Properties: Colorless or pale-yellow liquid; odor resembles that of pyridine. D 1.18, bp 116.8C. Soluble in alcohol and ether; slightly soluble in water.
Use: Organic synthesis of fungicides, dyes, and rubber accelerators.